Chapter 1 Project Description

1.1 Introduction

The California Department of Transportation (Department) is the lead agency under the California Environmental Quality Act (CEQA). The Department is also the lead agency under NEPA as assigned by the Federal Highway Administration (FHWA), in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321 et seq.); and the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508). The Department, in cooperation with the Orange County Transportation Authority (OCTA), the City of Dana Point, the City of San Clemente, and the City of San Juan Capistrano, is proposing to widen Interstate 5 (I-5) between Avenida Pico and San Juan Creek Road (proposed project). A regional location map is included in Figure 1-1.

The Department proposes to add one high-occupancy vehicle (HOV) lane in each direction on I-5, reestablish existing auxiliary lanes and construct new auxiliary lanes, and improve several existing on- and off-ramps in Orange County from 0.4 mile (mi) south of the Avenida Pico Undercrossing (UC) (Post Mile [PM] 3.0) to 0.1 mi south of the San Juan Creek Road UC (PM 8.7). The total length of the project is 5.7 mi. A project location map is included in Figure 1-2. Figure 1-3 shows the project limits in relation to major streets and landmarks located within the project vicinity.

The I-5 HOV Lane Extension project is programmed in the Southern California Association of Governments (SCAG) adopted 2011 Federal Transportation Improvement Program (FTIP) as *"I-5 From Coast Highway to Avenida Pico: Add 1 HOV Lane Each Direction (2H01143)"*. The proposed I-5 HOV Lane Extension Project is also included in the SCAG 2008 Regional Transportation Plan (RTP) and List of Constrained Projects. The RTP is a long-range vision of the regional transportation system for the six counties in the Southern California region. The Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura are included in the RTP.

The FTIP is a capital listing of all transportation projects proposed over a six-year period for the SCAG region. The projects include highway improvements; transit, rail, and bus facilities; HOV lanes; signal synchronization; intersection improvements; and freeway ramps.

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LEGEND

ProjLoc

N

0 2.5 5 Miles

SOURCE: Thomas Bros, (2007).

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FIGURE 1-1

I-5 HOV Lane Extension Project

Regional Location Map

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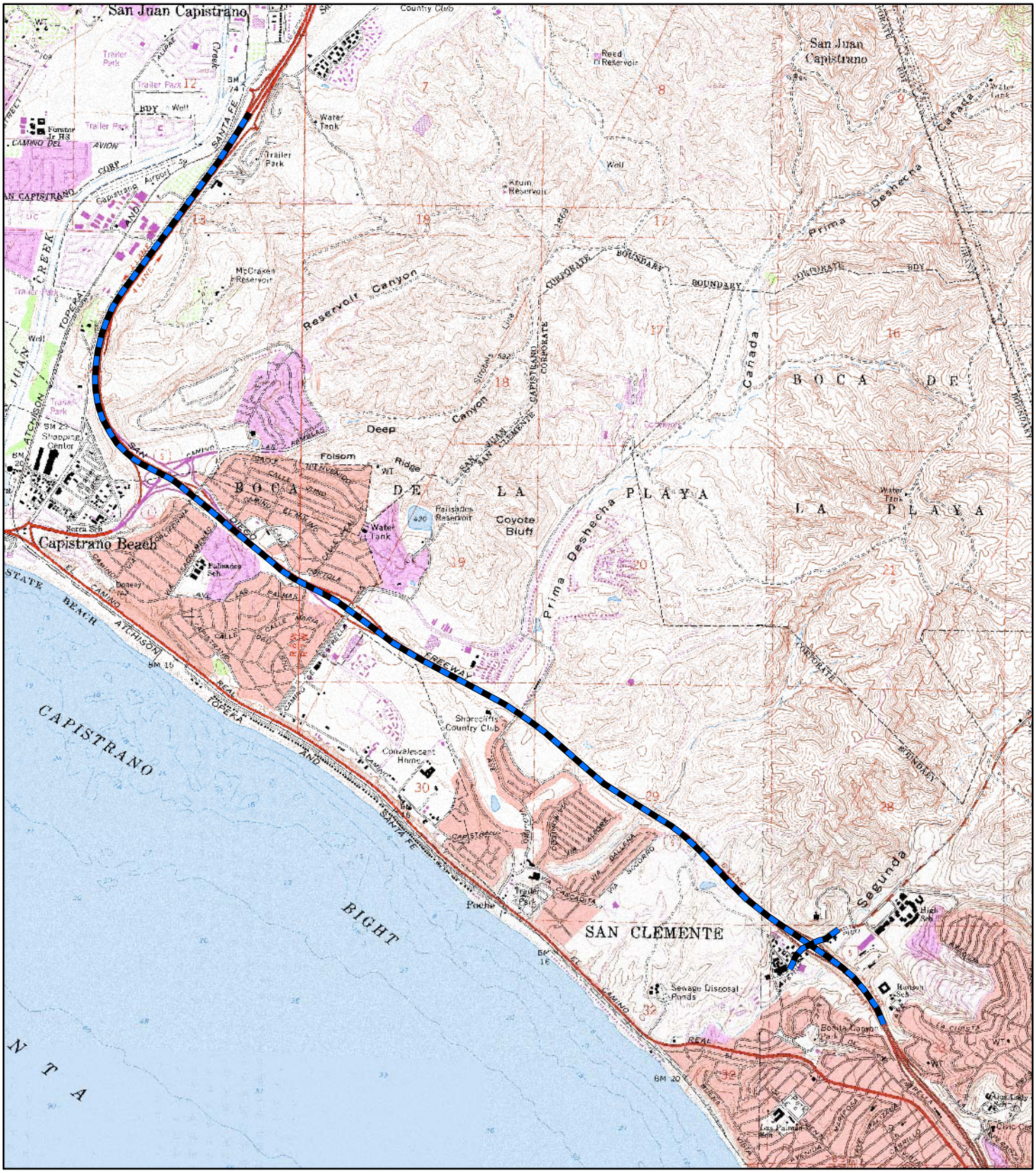

LEGEND

Project Location

FIGURE 1-2

0 1500 3000

FEET

SOURCE: USGS 7.5' QUAD - Dana Point (75); San Clemente (75)

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I-5 HOV Lane Extension Project

Project Location

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LEGEND

- Community Center
- Library
- School
- Parks

0 1000 2000
FEET

SOURCE: USGS 7.5' QUAD - Dana Point ('75); San Clemente ('75)

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FIGURE 1-3

I-5 HOV Lane Extension Project

Project Limits
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All I-5 projects programmed and planned under the FTIP are contained in the RTP. The Build Alternatives for the proposed project are consistent with the regional planning efforts. The RTP currently includes a planned HOV lane in each direction between Avenida Pico and Pacific Coast Highway (PCH) and is stated as, "Add 1 HOV Lane Each Direction from Avenida Pico to San Juan Creek Road and Reconfigure Avenida Pico Interchange." The RTP does not currently include HOV lanes between Avenida Pico and the Orange/San Diego County line.

The I-5 HOV Lane Extension Project is included as part of the OCTA Renewed Measure M Transportation Investment Plan (M2). The Measure M one-half cent sales tax for transportation improvements was renewed by Orange County (County) voters on November 7, 2006, and will be a continued investment of local tax dollars in the County's transportation infrastructure for another 30 years (through 2041). The I-5 HOV Lane Extension Project is one of six projects identified in the Early Action Plan (EAP) for M2 (identified as Project C). Projects included in M2 are strategic improvements needed to minimize systemwide freeway traffic congestion in the County. Subject to approval of a Natural Community Conservation Plan/Habitat Conservation Plan/Master Streambed Alteration Agreement (NCCP/HCP/MSAA) between OCTA and federal and State resource agencies, an Environmental Mitigation Program will be implemented to provide for high-value environmental benefits such as habitat protection and/or biological resource preservation in exchange for streamlined permit project approvals for M2 freeway projects.

The proposed project is among several other proposed projects along the I-5 corridor that are part of M2, including:

- Improvements to key I-5 interchanges such as Ortega Highway, Avery Parkway, La Paz Road, El Toro Road, and Avenida Pico (Project D)
- Improvements from State Route 55 (SR-55) to the El Toro "Y" area (Project B)
- Mainline improvements from the El Toro interchange are to the vicinity of State Route 73 (SR-73) (Project C north segment).

Major regional planning studies within the proposed project's study area are the South Orange County Major Investment Study (SOCMIS) and the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP).

After the start of the I-5 HOV Lane Extension and I-5/Avenida Pico Interchange Project Study Report/Project Development Support (PSR/PDS) projects, the Project

Development Team (PDT) for each separate project began discussing the integration of the interchange project into the larger HOV project. OCTA determined that this was the best course of action and presented the proposal to combine the two projects to the Highways Committee on January 18, 2010. The Committee gave a positive recommendation to the OCTA board; there was only one question regarding continuous access. Commissioner Glaab encouraged the team to move forward as quickly as possible. The item was passed on the consent calendar at the OCTA Board meeting on January 25, 2010.

A Route Concept Report (RCR) was prepared and developed by the Department District 12 Division of Planning and was approved in April 2000. The RCR shows I-5 as an ultimately 10-lane facility with four mixed-flow lanes and one HOV lane in each direction from 0.1 mi south of Avenida Pico to the Los Angeles County line. The RCR is compatible with the RCRs prepared for this route by California Department of Transportation (Caltrans) District 7 (Los Angeles County) and Caltrans District 11 (San Diego County), which also show HOV lanes extending to the Los Angeles County/Orange County and San Diego County/Orange County lines, respectively.

Additionally, this proposed project may also be federally funded through the Congestion Mitigation and Air Quality (CMAQ) program and is considered to be a full oversight under the current FHWA-Department of Transportation Stewardship and Oversight Agreement executed on September 4, 2007.

Multiple conceptual designs were originally developed for the proposed project, and three Build Alternatives (Alternatives 2–4) were carried forward for evaluation in the now-completed PSR/PDS phase of the proposed project. After the PSR/PDS phase was completed, these three alternatives were recommended for detailed environmental analysis, based on design and operational considerations. Based upon technical studies and recommendations completed after the PSR/PDS phase, Alternative 3 from the PSR/PDS phase has been deemed “nonviable” or infeasible and is not treated as a proposed project Build Alternative in the scope of this Initial Study/Environmental Assessment (IS/EA). This chapter provides descriptions of the previous project studies conducted to date, the current proposed project alternatives under consideration, and the proposed project alternatives previously considered but eliminated.

1.1.1 Project Setting

I-5 is a major north-south route that is used for interregional, interstate, and international travel and goods movement. It connects San Diego County from the south to Los Angeles County to the north and traverses many cities, including cities in Orange County. Within the project limits, I-5 is four lanes in each direction from Avenida Pico to Camino Las Ramblas/PCH and five lanes in each direction from just north of Camino Las Ramblas/PCH to San Juan Creek Road. Auxiliary lanes exist between Avenida Pico and Avenida Vista Hermosa and from Avenida de Estrella to Camino Las Ramblas/PCH.

The existing I-5 within the project limits is located in a mostly urbanized area of the Cities of San Juan Capistrano, Dana Point, and San Clemente and provides the primary thoroughfare through these cities. The area surrounding the proposed project is characterized by residential, commercial, retail, hotel, and community facility uses, including San Clemente High School, located adjacent to the I-5 northbound (NB) off-ramp at Avenida Pico. Figure 1-3 displays the limits of the proposed project.

1.2 Purpose and Need

1.2.1 Purpose of the Project

The purpose of the proposed project is to improve existing and future traffic operations on I-5 from Avenida Pico to San Juan Creek Road while minimizing environmental and economic impacts. The following key issues represent deficiencies of I-5 within the project limits and the solutions/opportunities for improvements:

- Achieve higher person-carrying capacity within the corridor by increasing the vehicle occupancy rate
- Help reduce emissions from transportation sources
- Promote ridesharing and the use of HOVs such as carpools, vanpools, and bus services
- Provide another lane option allowing for more consistent and predictable travel times for carpools, vanpools, buses, transit services, and emergency vehicles during peak periods
- Provide continuity of the I-5 mainline HOV network within the proposed project limits
- Relieve congestion due to the merge and diverge points for successive on- and off-ramps in both directions

- Improve the capacity of the on- and off-ramps within the project limits, where needed
- Relieve congestion between successive ramps at several interchanges
- Maximize overall performance within the proposed project limits by minimizing weaving conflicts at the termini of the HOV lanes and maintaining travel speeds for HOV lane users
- Provide auxiliary lanes, where needed, to relieve congestion at ramp diverge and merge locations
- Relieve local street congestion within interchange areas, on- and off-ramps, and local intersections
- Reduce congestion on I-5 within the proposed project limits

1.2.2 Need for the Project

Without the proposed project, the efficiency of the regional HOV system will be reduced because HOV traffic will be required to merge into mixed-flow traffic lanes. Delay in completion of the proposed project will contribute to traffic congestion on I-5 within the Cities of San Clemente, Dana Point, and San Juan Capistrano. The proposed I-5 HOV Lane Extension project is needed to address:

- A high level of traffic during the weekdays, as well as the weekends/holidays throughout the proposed project limits
- Congestion due to the termination of the existing HOV lane in both directions
- Delay due to weaving and merging of HOV at the current termini in both directions
- Congestion at the on-/off-ramps due to high traffic demands at the ramps
- Congestion due to weaving and merging between the successive ramps at several interchanges

1.2.2.1 Capacity, Transportation Demand, and Safety

This corridor is the only freeway or major highway that connects Los Angeles and Orange Counties with San Diego County. Currently, this corridor is operating with traffic demand exceeding capacity due to the following conditions:

- A high level of traffic during weekdays and weekends/holidays through the project limits
- Congestion due to the termination of the existing HOV lanes at Camino Capistrano in both directions on I-5

- Delay due to the weaving and merging of HOV traffic at the existing HOV termini in both directions on I-5
- Congestion at the on- and off-ramps due to high traffic volumes at these ramps
- Congestion due to weaving and merging between the successive ramps at several interchanges

The quality of traffic flow can be defined in terms of level of service (LOS). The measure used to provide an estimate of LOS on a freeway facility is the density of vehicles traveling on the facility at a specific time. There are six grades of LOS, ranging from LOS A (representing free-flow traffic conditions with low volumes and high speeds, resulting in low densities) to F (representing conditions where the traffic volumes exceed capacity and result in forced-flow operations at low speeds, resulting in high densities and delays). See Table 1.2-1 for a description of the LOS from A to F. Peak hours are the time periods in the morning and evening that correspond to the greatest number of vehicles utilizing roadways or freeways, which usually occur when commuters are traveling to and from work. Traffic volumes represent the number of vehicles on the roadway, and the volume-to-capacity (v/c) ratio represents the number of vehicles on the roadway compared to the capacity of the roadway. As the number of vehicles increases, the LOS decreases. Delay represents the average delay of a vehicle at an intersection/interchange. Existing 2009 LOS within the proposed project limits are shown in Table 1.2-2. The mainline within the proposed project limits generally exceeds the Department's desired operating condition of LOS C (average delay of 20.1 to 35.0 seconds per vehicle) for most segments. Several segments, in both the NB and southbound (SB) directions, operate at LOS D (average delay of 35.1 to 55.0 seconds per vehicle). Within the proposed project limits, the *I-5 HOV Lane Extension PA/ED Traffic Study* (*Traffic Study*; May 2010) indicates that the a.m. peak hour is more congested on NB I-5, and the p.m. peak hour is more congested on SB I-5.

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Table 1.2-1 Levels of Service

LEVELS OF SERVICE

for Freeways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

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Table 1.2-2 Existing Condition (2009) Mainline LOS

Location	Direction	HOV Lane	AM Peak Hour			PM Peak Hour		
			Volume	HOV Volume	LOS	Volume	HOV Volume	LOS
Mainline south of Avenida Pico	Northbound	No	6,170	N/A	C	6,030	N/A	C
	Southbound	No	5,620	N/A	B	6,820	N/A	C
Mainline south of Avenida Vista Hermosa	Northbound	No	6,480	N/A	C	6,640	N/A	C
	Southbound	No	6,070	N/A	C	7,050	N/A	C
Mainline south of Camino de los Mares/Camino de Estrella	Northbound	No	7,270	N/A	D	7,130	N/A	D
	Southbound	No	6,510	N/A	D	7,860	N/A	E
Mainline south of SR-1 (PCH)/ Camino Las Ramblas	Northbound	No	8,060	N/A	C	7,700	N/A	C
	Southbound	No	6,770	N/A	C	8,760	N/A	D
Mainline south of Camino Capistrano/ Stonehill	Northbound	Yes	6,620	1,000	D	5,820	800	C
	Southbound	No	6,520	N/A	B	8,870	N/A	C
Mainline south of South San Juan Creek Road	Northbound	Yes	8,130	1,000	E	6,860	800	D
	Southbound	No	6,520	N/A	C	8,870	N/A	D

Source: I-5 HOV Lane Extension PA/ED Traffic Study, May 2010.
HOV = high-occupancy vehicle
I-5 = Interstate 5
LOS = level of service
N/A = not applicable
PA/ED = Project Approval/Environmental Document
PCH = Pacific Coast Highway
SR-1 = State Route 1

As shown later in Table 2.2-1, SCAG projects that the population in Orange County will increase by 21.8 percent by 2035. In addition, SCAG projects that the population will increase by 16.2 percent in the City of San Clemente, 12.6 percent in the City of Dana Point, and 16.6 percent in the City of San Juan Capistrano, by the year 2035. Based on the projected population increases and data provided in Table 1.2-3 below, the No Build Alternative would not meet the purpose and need to relieve congestion and reduce delay in 2040.

Table 1.2-3 Future Condition (2040) Mainline LOS (No Build)

Location	Direction	HOV Lane	AM Peak Hour			PM Peak Hour		
			Volume	HOV Volume	LOS	Volume	HOV Volume	LOS
Mainline south of Avenida Pico	Northbound	No	8,120	N/A	D	7,410	N/A	C
	Southbound	No	7,690	N/A	C	9,220	N/A	D
Mainline south of Avenida Vista Hermosa	Northbound	No	8,570	N/A	D	8,090	N/A	D
	Southbound	No	8,200	N/A	D	9,360	N/A	D
Mainline south of Camino de los Mares/ Camino de Estrella	Northbound	No	9,760	N/A	F	8,840	N/A	F
	Southbound	No	8,980	N/A	F	10,620	N/A	F
Mainline south of SR-1 (PCH)/ Camino Las Ramblas	Northbound	No	11,140	N/A	D	9,170	N/A	C
	Southbound	No	9,220	N/A	D	11,340	N/A	F
Mainline south of Camino Capistrano/ Stonehill	Northbound	Yes	9,390	1,150	F	7,210	960	D
	Southbound	No	8,640	N/A	C	11,050	N/A	D
Mainline south of South San Juan Creek Road	Northbound	Yes	10,920	1,150	F	8,890	960	F
	Southbound	No	8,640	N/A	D	11,050	N/A	F

Source: *I-5 HOV Lane Extension PA/ED Traffic Study*, May 2010.
HOV = high-occupancy vehicle
I-5 = Interstate 5
LOS = level of service
N/A = not applicable
PA/ED = Project Approval/Environmental Document
PCH = Pacific Coast Highway
SR-1 = State Route 1

Table 1.2-3 presents future vehicle volumes and LOS results for the proposed project limits for the No Build condition in 2040. In 2040, during the a.m. peak hour, the NB volumes are projected to range from approximately 8,120 to 11,140 vehicles, while during the p.m. peak hour. SB volumes are expected to range from 9,220 to 11,340 vehicles. This is an increase of approximately 1,950 to 3,010 vehicles over existing traffic conditions in the NB direction and 2,400 to 2,470 vehicles in the SB direction. Table 1.2.3 shows that several freeway segments would operate at LOS F without the proposed project.

As indicated in the *Traffic Report,* for 2040, the a.m. peak period is equally or more congested on NB I-5 within the proposed project limits, and the p.m. peak period is equally or more congested on SB I-5 within the proposed project limits. Table 1.2-3 shows that in the future condition (2040), without the proposed project, all freeway segments are estimated to operate at LOS D or F, with the exception of the SB mainline south of Avenida Pico during the a.m. peak period, NB mainline south of Avenida Pico during the p.m. peak period, the NB mainline south of SR-1/Camino Las Ramblas during the p.m. peak period, and the SB mainline south of Camino Capistrano/Stonehill during the a.m. peak period.

1.2.2.2 Roadway Deficiencies

I-5 within the proposed project limits experiences congestion and delay during peak hours. This condition is partially attributed to the termination of the HOV lane at Camino Capistrano, resulting in congestion from weaving and merging. The secondary effect in the proposed project limits is a weaving and merging delay due to a lack of auxiliary lanes in certain locations. The current capacities of some of the on- and off-ramps do not meet the existing and future traffic demand.

The Department Traffic Accident Surveillance and Analysis System (TASAS) provides detailed accident rates for all highways in the State. District 12 provided accident data for NB and SB I-5 between the Avenida Palizada interchange area and the San Juan Creek Road interchange area for the period of January 1, 2006, through December 31, 2008. The TASAS summary accident data are provided in the *Traffic Study* (May 2010).

During the three-year period from January 1, 2006, through December 31, 2008, there were 976 accidents within the proposed project limits, with three being fatal and 353 involving injury. Multiple segments of the I-5 mainline within the proposed project limits have a higher accident rate than the statewide average for fatal accidents, fatal plus injury accidents, and for total accidents.

The following two locations on northbound I-5 experienced a fatal accident within the 36-month period:

- Between Avenida Palizada and Avenida Pico (PM 3.38)
- Between Avenida Pico and Avenida Vista Hermosa (PM 3.63)

The first fatality was an accident involving a single vehicle that occurred at post mile 3.38 on Friday, June 26, 2008, at 5:45 a.m. Improper turn was the primary collision factor with cloudy weather, dry pavement, and no unusual road conditions. The object struck was the end of a metal beam guardrail located off the right shoulder. The second fatality was a two-vehicle accident that occurred at post mile 3.63 on Saturday, January 25, 2008, at 10:12 p.m. Speeding was the primary collision factor with clear weather, dry pavement, and no unusual road conditions.

It is anticipated that the proposed project would reduce congestion-related accidents on the NB mainline as a result of the proposed capacity increase with the addition of the HOV lane. The mainline profile will also be raised in the Avenida Pico interchange area which will improve the stopping sight distance on the sag vertical curve, also enhancing safety on I-5.

1.2.2.3 Social Demand and Economic Development

With its connection to other counties, I-5 is a major commuter link between San Diego, Orange, and Los Angeles Counties and employment centers in these counties, making it essential to the economic vitality of Orange County. Recreational and tourist traffic demand is also high from San Diego, Orange, and Los Angeles Counties to beaches and other major recreational and tourist centers such as Sea World, Legoland California, the Disneyland Resort, and numerous attractions in Los Angeles.

The OCTA Long Range Transportation Plan (LRTP) includes the proposed elements to provide additional capacity on I-5 between PCH and Avenida Pico. OCTA also has completed the SOCMIS, which addresses future transportation challenges in the next 25 years within the region. The SOCMIS project limits begin at the I-5/SR-55 interchange in the City of Tustin at the northern limit and extend to the Orange/San Diego County line at the southern limit. Additional transportation improvements were considered as part of the SOCMIS; these were adopted by the OCTA Board of Directors in October 2008. There are no known new projected land use plans within or adjacent to the study area.

Existing land use plans for the project area include the General Plan Land Use Elements for the City of San Clemente, the City of Dana Point, and the City of San Juan Capistrano. These land use plans identify opportunities for future growth and development within these three cities and are discussed in Section 2.1 (Land Use) of this document. These three cities are built out, and most additional population and

employment growth is expected to take place through the natural increase and redevelopment of existing land uses or infill development of vacant parcels. Land uses within the study area are already established, with limited opportunity for a new unplanned large-scale development. However, the cities of San Clemente and Dana Point have approved several residential and commercial development projects that, when implemented, will result in limited growth within the project area.

Growth management and control plans and programs that regulate growth in the project area include the Revised Traffic Improvement and Growth Management Ordinance (Measure M, OCTA 1990), SCAG Growth Management Plan, Orange County Congestion Management Plan (CMP), and the Orange County General Plan Growth Management Element.

Measure M authorizes a one-half-cent retail sales tax increase to be used for funding local and regional transportation and maintenance projects. The Measure M program is designed to achieve cooperation among local Orange County jurisdictions to coordinate and implement traffic improvements and stronger planning on a countywide basis.

The SCAG Growth Management Plan recommends ways to redirect regional growth to minimize traffic congestion and improve environmental quality in Orange County. The South Coast Air Quality Management District (AQMD) supports the SCAG Growth Management Plan through implementation of the Air Quality Management Plan (AQMP) that mandates a variety of measures to reduce traffic congestion and improve air quality. New development in each city must comply with the AQMP.

The Orange County CMP is required as a result of Assembly Bill 471, as subsequently modified by Assembly Bill 1791, which requires urbanized cities with a population of 50,000 or more to adopt a CMP.

The purpose of the Orange County Growth Management Element is to ensure that the planning, management and implementation of traffic improvements and public facilities are adequate to meet the current and projected needs of Orange County. The County is divided into eleven Growth Management Areas (GMAs) for the purpose of coordinating the funding and implementation of traffic improvements within the jurisdictions that comprise each GMA.

1.2.2.4 Modal Interrelationships and System Linkages

I-5 is a major north-south regional facility in the States of California, Oregon and Washington. Within the proposed project limits, I-5 provides the Cities of San Clemente, Dana Point, and San Juan Capistrano with direct access to the cities of Mission Viejo, El Toro, Lake Forest, and Irvine, extending to north Orange County and Los Angeles County. I-5 also provides direct access to major east-west corridors, specifically State Route 76 (SR-76) and State Route 78 (SR-78) to the south, and State Route 74 (SR-74), SR-73, State Route 241 (SR-241), State Route 133 (SR-133), SR-55, State Route 57 (SR-57), and State Route 91 (SR-91) to the north. There are no parallel or contiguous transportation facilities within the proposed project limits that could reduce traffic demand on I-5 and offset the need for improvements to the proposed project segment of I-5.

The proposed project site and vicinity are served by OCTA and Metrolink. OCTA provides local bus routes throughout the study area. The proposed project improvements accommodate bus facilities served by OCTA along routes that include Avenida Pico (Community Routes 191 and 193). In addition, OCTA has a shared-ride service that provides for people who are unable to use the regular, fixed-route bus service because of functional limitations caused by a disability. OCTA has a Senior Mobility Program (SMP) that is designed to fill the gap between local fixed-route buses and Americans with Disabilities Act (ADA) paratransit or ACCESS service by providing local transportation services to seniors in participating cities in Orange County.

Metrolink is a commuter rail line that provides service to the Cities of San Clemente, San Juan Capistrano, and other areas, including downtown Los Angeles and several locations in Orange County. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), which provides transit services to the Counties of Orange, San Bernardino, Ventura, Riverside, San Diego, and Los Angeles. There is a Metrolink station located in San Juan Capistrano approximately 0.25 mi west of I-5 and a station in San Clemente approximately 0.75 mi west of I-5.

I-5 also provides a route for the movement of people between Los Angeles International Airport (LAX) and John Wayne Airport (SNA).

1.2.2.5 Air Quality Improvements

Transportation Demand Management (TDM) within the proposed project limits is facilitated by the Cities of San Clemente, Dana Point, and San Juan Capistrano. According to the City of San Clemente General Plan, it:

- Encourages nonresidential developments to provide employee incentives for utilizing alternatives to the conventional automobile (i.e., carpools, vanpools, buses, bicycles, and walking, etc.)
- Encourages the implementation of employer TDM requirements including in the Southern California Air Quality Management District's (SCAQMD) Regulation 15 of the Air Quality Management Plan
- Encourages industry to use flex-time, staggered working hours and other means to lessen commuter traffic
- Encourages the use of multioccupancy vehicle programs for shopping and other uses to reduce midday traffic
- Supports national, state, and regional legislation directed at encouraging the use of carpools and vanpools
- Promotes ridesharing through publicity and provision of information to the public
- Requires that proposals for major new nonresidential developments include submission of a TDM plan to the City

The City of Dana Point General Plan states that their TDM goals include the following:

- Implement intersection capacity improvements where feasible
- Encourage the implementation of employer TDM requirements included in the SCAQMD's Regulation XV of the Air Quality Management Plan. Participate in regional efforts to implement TDM requirements
- Require proposal for major new nonresidential developments (in excess of 50,000 square feet [sf]) include submission of a TDM plan to the City, including monitoring and enforcement provisions
- Encourage the development of additional regional public transportation services and support facilities including park-and-ride lots near the I-5 freeway
- Promote ridesharing through publicity and provision of information to the public

The City of San Juan Capistrano General Plan, Circulation Element, Goal 2 states that its policies are to:

- Encourage the increased use and expansion of public transportation opportunities
- Promote new employment-producing development in areas where public transit is convenient and desirable
- Encourage the provision of additional regional public transportation services and support facilities, such as park-and-ride lots

Regionally, transportation control measures such as HOV lanes, ramp metering, and auxiliary lanes are included within the freeway system.

Currently, there are two park-and-ride facilities just outside of the proposed project limits for people who carpool or use public transportation in the City of San Juan Capistrano. These lots are identified as Junipero Serra North and South lots, located at Junipero Serra Road and I-5.

1.2.2.6 Independent Utility and Logical Termini

The proposed project would construct one HOV lane in both directions on I-5. As discussed previously, I-5 within the proposed project limits experiences congestion and traffic delays. The proposed project termini would be of sufficient length to address environmental matters on a broad scope. The proposed project would result in improvements to the current traffic conditions along I-5 without any additional transportation improvements being made in the area. As such, the proposed project is considered to have independent utility. Furthermore, the proposed project would not restrict considerations of alternatives for other reasonably foreseeable transportation improvements.

1.3 Project Description

The proposed project is located in Orange County on I-5. The proposed project limits on I-5 extend from 0.4 mi south of the Avenida Pico UC (PM 3.0) to 0.1 mi south of the San Juan Creek Road UC (PM 8.7). The proposed project will add one HOV lane in each direction on I-5 throughout the proposed project limits, reestablish existing auxiliary lanes and construct new auxiliary lanes, and improve several existing on- and off-ramps. The purpose of the proposed project is to improve existing and future traffic operations on I-5 from Avenida Pico to San Juan Creek Road while minimizing environmental and economic impacts.

The proposed project area lies within the southern portion of the City of San Juan Capistrano, the eastern portion of the City of Dana Point, and the northwestern portion of the City of San Clemente. There are no parallel arterial roadway corridors

within the proposed project limits that are currently being utilized in lieu of the I-5 freeway. San Juan Creek and commercial uses border the northern side of I-5 at the northern project limits and to the south, the area is predominantly bordered by San Clemente High School and commercial uses.

The Transportation Management Plan (TMP), a standard condition placed on all Department construction projects, is designed to minimize construction activity-related motorist delays, queuing, and accidents by the effective application of traditional traffic-handling practices and innovative approaches. The purpose of the TMP is to relieve congestion and maintain traffic flow throughout the alternative routing and surrounding area within Orange County. The proposed project TMP proposes to keep all lanes open during construction, with the exception of overnight lane closures. Ramp closures will be limited to potential weekend closures and would not exceed a period of one week. The TMP will be finalized during final design.

The TMP includes traffic mitigation strategies for the duration of construction, addresses lane closure requirements, and seeks to inform the public and motorists regarding the construction schedule, potential detours, and anticipated traffic delays during construction.

1.4 Project Alternatives

This section describes the proposed project and the design alternatives that were developed by a multidisciplinary team to achieve the proposed project purpose and need while avoiding or minimizing environmental impacts. Criteria used to evaluate these alternatives include impacts to resources, feasibility, ability to meet the purpose and need, and cost. A summary of impacts by alternative is provided in Table 1.8-2 (provided at the end of this section). The alternatives, as described in this section, consist of the no build alternative (Alternative 1) and two build alternatives (Alternatives 2 and 4).

1.4.1 Common Design Features of the Build Alternatives

The proposed project will add one HOV lane in each direction on I-5 throughout the project limits, reestablish existing auxiliary lanes and construct new auxiliary lanes, and improve several existing on- and off-ramps.

1.4.1.1 Auxiliary Lanes

The Build Alternatives propose to remove the existing I-5 paved shoulders and construct new traveled way and new shoulder pavement to the outside of the NB and

SB lanes to accommodate HOV lanes. Both alternatives propose full standard lane and shoulder widths throughout the majority of the project limits. Additionally, existing auxiliary lanes through the proposed project limits are proposed to be reestablished, and new auxiliary lanes will be constructed at the following locations (at the specified lengths):

- To Avenida Vista Hermosa SB off-ramp (1,300 ft)
- From Avenida Vista Hermosa NB on-ramp (1,600 ft)
- From Camino de Estrella SB on-ramp (1,600 ft)

1.4.1.2 Avenida Pico Interchange Improvements

In addition to providing an HOV lane through the I-5/Avenida Pico interchange, the interchange configuration will also be improved. There are two options under consideration for reconfiguration of the interchange, both of which require replacement of the Avenida Pico UC structure.

Design Option A: Modified Tight Diamond Interchange

Under this option, the on- and off-ramps at Avenida Pico will be realigned and the NB on-ramp will be widened to three lanes. The overall configuration of the interchange will be similar to the existing configuration. Additionally, Avenida Pico will be improved under the structure to provide dual left-turn lanes to both the NB and SB on-ramps. This alternative will incorporate an interconnect line to optimize signal timing and operations for the closely spaced intersections at the interchange. The geometry of Avenida Pico will also be improved on the east side of I-5 to remove the existing reversing curves. Bicycle lanes and standard outside shoulders will be provided throughout the majority of the interchange in both the eastbound (EB) and westbound (WB) directions. Sidewalk will be provided through the interchange in the EB direction. In the WB direction, space will be provided to accommodate future construction of a 12 ft lane and sidewalk through the interchange.

Design Option B: NB Loop On-Ramp/Realigned NB Off-Ramp

Under this option, a NB loop on-ramp will be added to allow for the removal of the existing left-turn lane for traffic heading eastbound on Avenida Pico to access NB I-5. (The existing directional on-ramp would remain in place for traffic heading WB to access NB I-5). Additionally, the NB off-ramp would be reconfigured around the loop, resulting in a partial cloverleaf configuration. The SB ramps will be realigned, and the geometry of Avenida Pico will be improved as proposed in Design Option A. Dual left-turn lanes will be provided under the structure to the SB on-ramp. Bicycle

lanes and standard outside shoulders will be provided throughout the majority of the interchange in both the EB and WB directions. Sidewalk will be provided through the interchange in the EB direction. In the WB direction, space will be provided to accommodate future construction of a 12 ft lane and sidewalk through the interchange.

1.4.1.3 Ramps

The following ramps within the project limits will be modified in order to accommodate the HOV lanes, which include improvements ranging from restriping to complete reconstruction.

Avenida Pico

- Modify ramps as described in Design Options A and B above

Avenida Vista Hermosa

- Restripe NB and SB loop on-ramps
- Restripe and reconstruct NB on- and off-ramps and SB off-ramp

Camino de Estrella

- Realign, reconstruct, and widen SB off-ramp to a two-lane ramp
- Realign and reconstruct NB and SB on-ramps and NB loop on-ramp
- Realign NB off-ramp

Camino Las Ramblas/PCH

- Realign, reconstruct, and widen SB PCH to SB I-5 connector to a two-lane connector
- Realign and reconstruct SB loop on-ramp
- Realign SB off-ramp and NB on- and off-ramps
- Realign NB I-5 connector

1.4.1.4 Structures

Via California

The Via California structure is located north of Camino de Estrella and south of Camino Las Ramblas/PCH in the City of Dana Point. Reduced shoulder widths are proposed under the Via California structure in order to avoid replacement of the existing Via California Overcrossing (Bridge No. 55-225). The inside shoulder is reduced to approximately four ft at the minimum location, and the HOV buffer is eliminated in the NB direction.

Avenida Pico

These alternatives also propose to replace the Avenida Pico UC structure (Bridge No. 55-205) to accommodate the HOV lane in each direction through the interchange. In order to achieve a standard vertical clearance for this structure, the I-5 mainline profile will be raised through the interchange area. Additionally, to ensure that all existing mainline lanes are open through construction, the I-5 centerline will be realigned westerly approximately 20 ft through the interchange.

Avenida Vaquero UC (Bridge No. 55-223)

Structure widening on the NB and SB sides of I-5.

NB I-5 to NB PCH Connector (Bridge No. 55-226)

Structure widening on the NB and SB sides of I-5.

Route 5/Camino Las Ramblas UC (Bridge No. 55-510)

Structure widening on the NB and SB sides of I-5.

Camino Capistrano UC (Stonehill Drive) (Bridge No. 55-227L and 55-227R)

Structure widening on the SB side of I-5.

1.4.1.5 Noise Attenuation

The following potential new soundwall locations were identified as feasible in the Noise Study Report (September 2010). (Please refer to Figure 2.14-2 for locations of these walls. Also, please note that the prefix for soundwalls proposed under Alternative 4 becomes a "4" instead of a "2.")

- SB 2-01 – Along the residential property line between Avenida La Cuesta on the east side of I-5 south of Avenida Pico. [six to 16 ft in height]
- SB 2-02 – Along the Ole Hanson Elementary School property line on the east side of I-5 south of Avenida Pico. [six to 16 ft in height]
- SB 2-04 – Along the residential property line along Calle Frontera and Calle Juarez on the east side of I-5 between Avenida Pico and Avenida Vaquero. Three existing six ft high walls along the residential property lines partially shield these residences. The modeled sound barrier is in the same location as the existing wall. [six to 16 ft in height]
- SB 2-07 – Along the residential property line along Calle Canasta on the east side of I-5 north of Avenida Vaquero. [six to 16 ft in height]

- SB 2-08 – Along the property line shielding an outdoor swimming pool along Camino de los Mares on the east side of I-5 between Avenida Vaquero and Camino de Estrella. A six ft high wall currently shields this outdoor pool, and the modeled sound barrier is in the same location as the existing wall. [10 to 16 ft in height]
- SB 2-09 – Along the edge of shoulder shielding residents along Calle Grand Vista on the west side of I-5 between Avenida Vaquero and Camino de Estrella. An existing 10 to 16 ft high wall along the edge of shoulder and an existing six to 16 ft high wall along the edge of shoulder currently shield these residences. [10 to 14 ft in height]
- SB 2-11 – Along the existing right-of-way (ROW) along Calle Portola on the east side of I-5 north of Camino de Estrella. An existing four to seven ft high wall along the existing ROW shields residences in this area, and the modeled sound barrier is in the same location as the existing wall. [six to 16 ft in height]
- SB 2-14/SB 2-27 – Along the residential property line along Via California on the east side of I-5 north of Via California. [10 to 16 ft in height]
- SB 2-15 – Along the existing ROW along Via California on the west side of I-5 north of Via California. [six to 16 ft in height]
- SB 2-16 – Along the residential property line along Camino de Vista on the east side of I-5 north of PCH. An existing 14 ft high wall exists along the edge of shoulder and shields adjacent residences. A sound barrier may be relocated from the edge of shoulder to the residential property line. [six to 16 ft in height]
- SB 2-20 – Along the residential property line adjacent to residences along Valle Road on the east side of I-5 between PCH and San Juan Creek Road. [six to 16 ft in height]
- SB 2-22/SB 2-23/SB 2-24/SB 2-25 – Along the edge of shoulder adjacent to residences along Valle Road on the east side of I-5 south of San Juan Creek Road. An existing 14 ft high wall along the edge of shoulder partially shields these residences. [six to 16 ft in height]
- SB 2-27 – Along the existing State ROW adjacent to residences along Via California on the east side of I-5 north of Via California. An existing five to 13 ft high wall along the existing State ROW shields these residences.

The following existing soundwalls would be removed and replaced as part of the proposed project. (Please refer to Figure 2.14-2 for locations of these walls.)

- Existing Wall No. 7 – Along the edge of shoulder along the SB side of I-5 from Station (STA) 238+00 to STA 241+00.
- Existing Wall No. 9 – Along the edge of shoulder along the SB side of I-5 from STA 250+00 to STA 259+50.
- Existing Wall No. 12 – Along the edge of shoulder along the NB side of I-5 from STA 276+00 to STA 280+50. It should be noted that a 14 to 16 ft high soundwall identified in the *Supplemental Noise Barrier Scope Summary* Report (NBSSR), under Caltrans Expense Account No. UG9301, could be constructed prior to the construction of the I-5 HOV Lane Extension Project.
- Existing Wall Nos. 15 and 16 – Along the edge of shoulder along the SB side of I-5 from STA 291+00 to STA 303+00.
- Existing Wall No. 19 – Along the edge of shoulder along the NB side of I-5 from STA 327+00 to STA 334+00.
- Existing Wall No. 26 – Along the edge of shoulder along the NB side of I-5 from STA 369+50 to STA 375+00.

An additional analysis of the soundwalls is provided in the Noise Abatement Decision Report (NADR; September 2010) and those walls found to be feasible and reasonable are listed below.

- SB 2-11 – Along the existing ROW along Calle Portola on the east side of I-5 north of Camino de Estrella. An existing four to seven ft high wall along the existing ROW shields residences in this area, and the modeled sound barrier is in the same location as the existing wall. [10 to 16 ft in height]
- SB 2-15 – Along the existing ROW along Via California on the west side of I-5 north of Via California. [six to 16 ft in height]
- SB 2-16 – Along the residential property line along Camino de Vista on the east side of I-5 north of PCH. An existing 14 ft high wall exists along the edge of shoulder and shields adjacent residences. A sound barrier may be relocated from the edge of shoulder to the residential property line. [10 to 16 ft in height]

In addition, it is possible that the following two feasible walls could become reasonable if ROW is donated:

- SB 2-1b – Along the residential property line along Calle Portola on the east side of I-5 north of Camino De Estrella. An existing four to seven ft high wall exists along the existing ROW and shields these residences (6 ft high only).

- SB 2-7 – Along the residential property line along Calle Canasta on the east side of I-5 north of Avenida Vaquero (six to 14 ft high only).

1.4.1.6 Retaining Walls

The following retaining walls are proposed under Alternative 2:

Option A

- RW No. 166 – NB I-5 south of Avenida Pico to (2,209 ft): eight ft high
- RW No. 183 – SB I-5 between SB on-ramp from Avenida Pico and I-5 (638 ft): 10 ft high
- RW No. 190 – NB I-5 along NB on-ramp from Avenida Pico (1,241 ft): 28 ft high
- RW No. 177 – SB I-5 along SB on-ramp from Avenida Pico (1,123 ft): nine ft high
- RW No. 193 – SB I-5 between SB off-ramp to Avenida Pico and I-5 (1,172 ft): 18 ft high
- RW No. 195 – SB I-5 along SB off-ramp to Avenida Pico (1,139 ft): 21 ft high
- RW No. 218 – NB I-5 along NB off-ramp to Avenida Vista Hermosa (204 ft): 15 ft high
- RW No. 242 – NB I-5 north of Avenida Vista Hermosa (394 ft): 17 ft high
- RW No. 249 – SB I-5 north of Avenida Vista Hermosa (538 ft): eight ft high (a portion of this wall will have a soundwall on top)
- RW No. 275 – SB I-5 north of Avenida Vaquero (412 ft): nine ft high
- RW No. 297 – SB I-5 along SB on-ramp from Camino de Estrella (521 ft): 10 ft high
- RW No. 302 – NB I-5 along NB off-ramp to Camino de Estrella (1,098 ft): 13 ft high
- RW No. 330 – NB I-5 along NB on-ramp from Camino de Estrella (455 ft): 13 ft high
- RW No. 387 – SB I-5 north of PCH (1,000 ft): 18 ft high
- RW No. 399 – SB I-5 north of Stonehill Drive (255 ft): nine ft high

The following retaining walls are proposed with a soundwall on top:

- RW No. 237 – SB I-5 along SB off-ramp to Avenida Vista Hermosa (298 ft): six feet high
- RW No. 274 – NB I-5 north of Avenida Vaquero (220 ft): 10 ft high

- RW No. 287 – SB I-5 south of Camino de Estrella (712 ft): 13 ft high
- RW No. 344 – NB I-5 along NB off-ramp to PCH (519 ft): eight ft high

Option B

- RW No. 166 – NB I-5 south of Avenida Pico (2,127 ft): 12 ft high
- RW No. 183 – SB I-5 between SB on-ramp from Avenida Pico and I-5 (638 ft): 10 ft high
- RW No. 190 – NB I-5 along NB on-ramp from Avenida Pico (1,399 ft): 22 ft high
- RW No. 192 – NB I-5 between NB on-ramp from Avenida Pico and I-5 (406 ft): 10 ft high
- RW No. 177 – SB I-5 along SB on-ramp from Avenida Pico (1,123 ft): nine ft high
- RW No. 193 – SB I-5 between SB off-ramp to Avenida Pico and I-5 (1,172 ft): 18 ft high
- RW No. 195 – SB I-5 along SB off-ramp to Avenida Pico (1,139 ft): 21 ft high
- RW No. 218 – NB I-5 along NB off-ramp to Avenida Vista Hermosa (204 ft): 15 ft high
- RW No. 242 – NB I-5 north of Avenida Vista Hermosa (394 ft): 17 ft high
- RW No.249 – SB I-5 north of Avenida Vista Hermosa (538 ft): eight ft high
- RW No.275 – SB I-5 north of Avenida Vaquero (412 ft): nine ft high
- RW No.297 – SB I-5 along SB on-ramp from Camino de Estrella (521 ft): 10 ft high (a portion of this wall will have a soundwall on top)
- RW No. 302 – NB I-5 along NB off-ramp to Camino de Estrella (1,098 ft): 13 ft high
- RW No.330 – NB I-5 along NB on-ramp from Camino de Estrella (455 ft): 13 ft high
- RW No. 387 – SB I-5 north of PCH (1,000 ft): 18 ft high
- RW No. 399 – SB I-5 north of Stonehill Drive (255 ft): nine ft high

The following retaining walls are proposed with a soundwall on top:

- RW No. 237 – SB I-5 along SB off-ramp to Avenida Vista Hermosa (298 ft): six ft high
- RW No. 274 – NB I-5 north of Avenida Vaquero (220 ft): 10 ft high
- RW No. 287 – SB I-5 south of Camino de Estrella (712 ft): 13 ft high
- RW No. 334 – NB I-5 along NB off-ramp to PCH (519 ft): eight ft high

1.4.1.7 Utilities

All existing utilities within Department ROW would be protected in place or relocated within the proposed project limits during construction of the proposed project. Please see Section 2.4 of this IS/EA, Utilities and Emergency Services, for more detail regarding these utilities.

1.4.1.8 Drainage

Drainage system improvements are proposed to collect and convey the design flow from the proposed project site while maintaining existing flow patterns and incorporating existing drainage systems as much as possible. Under Design Option B, as a result of the NB ramp improvements, the existing 18 ft x 18 ft reinforced concrete box (RCB) conveying the runoff from the Segunda Deshecha Cañada channel would be extended approximately 50 ft to the northeast. Additionally, the slope of the existing channel upstream of the extended culvert will be modified from 1.1 percent to three percent for approximately 20 ft to tie the proposed and existing facilities together. New storm drain connections would also be proposed at the ramp curb returns on Avenida Pico to tie into the existing local drainage systems.

1.4.1.9 Staging

All staging will be within the proposed ROW. Staging areas under consideration include the Avenida Pico, Avenida Vista Hermosa, and Pacific Coast Highway (PCH) interchange areas.

1.4.1.10 Signing

Signs would be removed and relocated to accommodate the widening.

1.4.1.11 ROW Acquisition

There are four nonresidential properties that will be impacted under all the Build Alternatives for Design Option B. These acquisitions occur adjacent to the I-5/ Avenida Pico Interchange. Two full acquisitions will occur in the southwest quadrant, and two full acquisitions will occur in the southeast quadrant. Only two full acquisitions (in the southwest quadrant) will occur as a result of Design Option A. Acquisitions would also be required from nonresidential properties under each Design Option in order to accommodate the new retaining wall along Avenida Pico on the east side of I-5 and the improvement of the Avenida Pico geometry to correct the existing reversing curves. Design Option A under all Build Alternatives would result in three partial parcel acquisitions, while Design Option B would result in four partial parcel acquisitions. Additionally, Design Option A would require two full

acquisitions, resulting in the relocation of two businesses, and Design Option B would require four full acquisitions, resulting in the relocation of four businesses.

Temporary construction easements would also be required throughout the project limits to construct potential sound walls. Further discussion of potential acquisitions is provided in Section 2.3, Community Impacts.

1.4.1.12 Transportation Systems Management/Transportation Demand Management

Transportation Systems Management (TSM) elements will be included in the project Build Alternatives. These elements include: ramp metering, auxiliary lanes, turning lanes, traffic signal coordination, and bicycle and pedestrian improvements. Additionally, the project Build Alternatives will consist of TDM elements as it will provide travel time savings, operating cost savings and increased travel reliability. Additionally, the proposed project is expected to further increase the occupancy rate on I-5 and thus decrease the traffic demand.

1.4.1.13 Anticipated Construction Schedule

Construction is anticipated to begin in 2015 and be completed in 2019. The proposed construction sequencing is intended to provide continuous, uninterrupted access to I-5 throughout the duration of construction (including nighttime construction). The project improvements are anticipated to be constructed in three major construction stages: Stage 1 -widening to the outside along I-5 throughout the project limits; Stage 2 - construction of the median re-profiling required within the Avenida Pico interchange area and construction of the middle portion of the new Avenida Pico UC structure; and Stage 3 – construction of the easterly portion of the new Avenida Pico UC structure and completion of the re-alignment and re-profiling of I-5 at the interchange.

1.4.2 Unique Design Features of the Build Alternatives

Unique design features of the two build alternatives (Alternatives 2 and 4) are described below.

1.4.2.1 Alternative 2

Alternative 2 proposes full standard widths, including a 10-foot (ft) inside shoulder, 12 ft HOV lane, four ft buffer, four 12 ft general-purpose lanes, and a 10 ft outside shoulder throughout the majority of the project limits.

Cost

The cost for Alternative 2 under Option A is $253,522,000. The cost for Alternative 2 under Option B is $266,419,000.

Ramps

The Camino Capistrano (Stonehill Drive) NB on-ramp will be realigned and reconstructed with a lower profile under the bridge to provide standard vertical clearance.

Structures

The I-5 NB Camino Capistrano UC (Stonehill Drive) (Bridge No. 55-227R) would be widened on the NB side.

Noise Attenuation

- Existing Wall No. 22 would be removed and replaced along the edge of shoulder along the NB side of I-5 from STA 340+50 to STA 352+00.
- Existing Wall No. 18 would be removed and replaced along the edge of shoulder along the SB side of I-5 from STA 329+50 to STA 330+50.

Retaining Walls

Option A

- RW No. 184 – NB I-5 between NB off-ramp to Avenida Pico and I-5 (489 ft): nine ft high
- RW No. 192 – NB I-5 between NB on-ramp from Avenida Pico and I-5 (396 ft): nine ft high
- RW No. 236 – NB I-5 along NB on-ramp from Avenida Vista Hermosa (245 ft): six ft high

Option B

- RW No. 236 – NB I-5 along NB on-ramp from Avenida Vista Hermosa (245 ft): six ft high

Other Improvements

Alternative 2 proposes to improve the existing compound curve between 0.3 mi south of Stonehill Drive and PCH. This alternative would provide a wide inside shoulder (26 ft at the maximum width) throughout the southern portion of the curve along with increasing the radius from 2,000 ft to 2,200 ft to accommodate full standard stopping sight distance in the SB direction. For the northern portion of the curve, the existing radius is increased from 3,200 ft to 3,300 ft, with a 16 ft inside shoulder, in order to

achieve standard stopping sight distance through this portion of the compound curve. To accommodate the improvements to this compound curve, the median will be reconstructed.

1.4.2.2 Alternative 4

Alternative 4 proposes no HOV buffer instead of the four ft buffer proposed in Alternative 2. Under the no buffer scenario, the HOV lane will accommodate continuous access throughout the project limits.

Cost

The cost of Alternative 4 under Option A is $227,981,000. The cost of Alternative 4 under Option B is $241,415,000.

Noise Attenuation

- Existing Wall No. 22 would be removed and replaced along the edge of shoulder along the NB side of I-5 from STA 340+50 to STA 350+50.

Retaining Walls

Option A

No additional walls needed.

Option B

No additional walls needed.

Other Improvements

Under Alternative 4, for the northern portion of the compound curve, the existing radius would not be changed and a standard 10 ft median shoulder would be provided, which would minimize impacts but result in a nonstandard stopping sight distance condition. To accommodate the improvements to this compound curve, the median will be reconstructed.

1.4.3 TSM Alternative

The Transportation Systems Management (TSM) Alternative consists of strategies to maximize efficiency of the existing facility by providing options such as ridesharing, parking, and traffic signal optimization. TSM options to improve traffic flow typically increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Such strategies include replacing existing stop signs with traffic signals at intersections to improve existing peak hour traffic flow and to reduce queuing of vehicles. TSM also encourages automobile, public and private

transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system.

Although TSM measures would not solely satisfy the purpose and need of the project, TSM measures have been incorporated into the Build Alternatives for this project as summarized below:

- Ramp Metering
- Auxiliary Lanes
- Turning Lanes
- Traffic Signal Coordination
- Bicycle and Pedestrian Improvements

1.4.4 TDM Alternative

The TDM Alternative focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation choice in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. Typical activities within this alternative reduce the amount of single occupancy vehicle trips by providing funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases and providing limited rideshare services to employers and individuals. Promoting mass transit, and facilitating nonmotorized alternative means of transportation are two such examples, but TDM strategies may also include reducing the need for travel altogether through initiatives such as telecommuting. In some cases, TDM may also involve changing work schedules, with the resultant greater travel flexibility producing a more even pattern of transportation network use, muting the effect of morning and evening rush hours.

Implementation of I-5 HOV Lane Project Build Alternatives will extend the existing HOV lane from Avenida Pico to San Juan Creek Road. The HOV lane extension will provide travel time savings, operating cost savings and increased travel reliability. Either of the Build Alternatives, if selected, is expected to further increase the occupancy rate on I-5 and thus decrease the traffic demand. As discussed earlier under Section 1.2.2.6, Modal Interrelationship and System Linkages, the TDM strategies are consistent with the Cities of San Clemente, Dana Point, and San Juan Capistrano General Plans.

1.4.5 Alternative 1: No Build

The No Build Alternative proposes no improvements to I-5 and would maintain the existing four general-purpose lanes throughout the project limits in the NB and SB directions. All freeway facilities would remain as is, with the exception of proposed projects that are under development or currently in construction. Since the projected growth forecasts for Orange County show an increase in the number of users, the traffic volume would most likely increase. Lacking additional space/capacity, an increase in traffic volume would increase traffic congestion, leading to degraded LOS and an increase in delays. As a result, the No Build Alternative is not consistent with the proposed project's purpose and need or the recommendations of the I-5 RCR. The No Build Alternative is being considered because it serves as the baseline against which to evaluate the effectiveness of the proposed Build Alternatives. Describing and analyzing a No Build Alternative helps decision makers compare the impacts of approving the proposed project with the impacts of not approving the proposed project.

1.5 Project Schedule

This environmental document is anticipated to be completed and approved in late 2011. Final design and ROW acquisition is anticipated to be completed in mid 2014. Project construction is anticipated to begin in 2015 and continue until 2019. For programming purposes, the I-5 HOV Lane Extension Project is proposed to be phased as follows:

- Segment 1 – South project limits (approximately Station [STA] 165+00) to STA 210+00 (PM 3.0 to PM 3.7)
- Segment 2 – STA 210+00 to STA 340+00 (PM 3.7 to PM 6.2)
- Segment 3 – STA 340+00 to North project limits (approximately STA 465+00) (PM 6.2 to PM 8.7)

This construction phasing will adhere to the scope of this environmental document.

1.6 Environmental Decision Process

After the public circulation period, all comments will be considered and the PDT will select a preferred alternative and make the final determination of the proposed project's effect on the environment. In accordance with CEQA, if no unmitigable significant adverse impacts are identified, the Department will prepare a Mitigated Negative Declaration. Similarly, if the Department determines the action does not

significantly impact the environment, the Department, as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.7 Alternatives Considered but Eliminated from Future Discussion

An analysis of the proposed project provided a comprehensive study of design solutions that were considered for addressing the need for improvements within the proposed project limits on I-5. The concepts discussed below were evaluated and eliminated from further discussion based on impacts to resources, feasibility, and inability to meet the purpose and need.

1.7.1 Alternative 3

Alternative 3 was proposed to be very similar in nature to Alternative 2. It also proposed full standard widths, including a 10 ft inside shoulder, 12 ft HOV lane, four ft buffer, four 12 ft general purpose lanes, and a 10 ft outside shoulder throughout the majority of the proposed project limits. New auxiliary lanes and the design options for the I-5/Avenida Pico interchange reconfiguration are the same as noted under Alternative 2. The difference between Alternative 2 and 3 is that in Alternative 3, for the northern portion of the compound curve between 0.3 mi south of Stonehill Drive and PCH, the existing I-5 centerline radius would not be changed. The other difference is the SB I-5 median shoulder would be reduced from eight ft to two ft along the tangent prior to entering the compound horizontal curve and along a portion of the curve itself. The median shoulder reduction would result in a nonstandard stopping sight distance at entry into the curve. As a result of this nonstandard condition, the I-5 NB Camino Capistrano UC (Stonehill Drive) (Bridge 55-227R) would not need to be widened.

Alternative 3 was eliminated from further consideration because maintaining the existing radius and nonstandard stopping sight distance for the northern portion of the compound curve would be unacceptable. Also, Alternative 3 provides no benefit and proposes unacceptable nonstandard features. The PDT made the decision to eliminate Alternative 3 on March 25, 2010.

1.7.2 Avenida Pico Interchange Options

Several options for the reconfiguration of the Avenida Pico interchange were rejected by the PDT for various reasons as discussed below.

1.7.2.1 Half Cloverleaf/Half Diamond

This option proposed modifying the existing Avenida Pico SB ramps to eliminate the traffic signal on the west side of the interchange. To do this, loop ramps were proposed in the northwest and southwest quadrants of the interchange. The SB loop on-ramp in the northwest quadrant would eliminate the left turn for traffic traveling west on Avenida Pico to access SB I-5. The SB directional off-ramp to WB Avenida Pico would be realigned around this loop ramp. Another loop ramp would be constructed in the southwest quadrant to allow for free movement for SB I-5 traffic accessing EB Avenida Pico. The SB directional on-ramp from EB Avenida Pico would be realigned around this loop ramp.

This option was eliminated from further consideration because of the major ROW impacts required to construct the loop ramps. Additionally, this design would create a weaving section between the SB on- and off-ramp traffic.

1.7.2.2 Single-Point Urban Interchange

This option proposes a Single-Point Urban Interchange (SPUI), which means that all movements in the interchanges are controlled by a single set of traffic signals. This option would limit the ROW impacts at the interchange. All of the ramps would need to be reconstructed to allow for all of the movements to meet at a single point.

This option was eliminated from further consideration because it would limit future development within the interchange area. Additionally, there would be numerous crossing conflicts for bikes and pedestrians, and the free right turns proposed could result in weaving conflicts with the local traffic accessing the driveways to adjacent businesses.

1.7.2.3 Partial Cloverleaf

This option would eliminate all of the left turns within the interchange area by providing loop on-ramps in the NB and SB directions in the southeast and northwest quadrants, respectively. The NB and SB directional on-ramps would be modified at their junction with Avenida Pico to allow for a free right-turn movement. The combination of the loop and directional on-ramps would create direct on-ramps to I-5 in all directions. Additionally, the NB and SB off-ramps would be realigned around the new loop on-ramps.

This option was eliminated from further consideration because of the major ROW impacts required to construct the loop ramps. It would also require a major

realignment of Avenida Pico and reduce the interchange spacing between Avenida Pico and Avenida Palizada.

1.7.2.4 SB Loop On-Ramp/Realigned SB Off-Ramp (Intersection at Via Pico Plaza)

This option would address the traffic accessing SB I-5 from Avenida Pico by providing a loop on-ramp in the northwest quadrant. The NB off-ramp would be realigned around the new loop on-ramp and would intersect with Avenida Pico at the existing Via Pico Plaza/Avenida Pico intersection. This option would also provide dual left-turn lanes to the NB I-5 on-ramp on Avenida Pico.

This option was eliminated from further consideration because it created numerous ROW impacts in the northwest quadrant.

1.7.2.5 SB Loop On-Ramp (130 ft Radius)/Realigned SB Off-Ramp

This option is similar to the previous option except that the loop radius would be only 130 ft. For this reason, another intersection for the NB off-ramp would be created between the Via Pico Plaza/Avenida Pico intersection and the I-5 NB ramps/Avenida Pico intersection. This would still result in three closely spaced intersections, which is the same as the existing condition. Because the elimination of the one of the intersections by aligning the NB off-ramp with the Via Pico Plaza intersection was preferable, this option was eliminated from further consideration.

1.7.2.6 Hook Ramps to Calle de Industrias

This option proposed eliminating the existing SB on- and off-ramps and replacing them with hook ramps. These hook on- and off-ramps would touch down at Calle de Industrias to provide access to Avenida Pico. A cul-de-sac would need to be constructed on Avenida Navarro to accommodate the new hook ramps.

This option was eliminated from further consideration because two left-turn movements would be required to access Avenida Pico, which was considered to be a fatal flaw.

1.7.2.7 SB Loop Off-Ramp/Realigned SB Off-Ramp

This option proposed modifying the existing directional off-ramp to create a free right-turn movement to WB Avenida Pico and constructing a loop off-ramp for existing traffic accessing EB Avenida Pico. This would require construction of a separate structure for the off-ramp as it crosses over Avenida Pico. Also, the SB on-ramp would be moved so that it starts from where Via Pico Plaza currently ends.

This option was eliminated from further consideration because there is a potential issue with interchange spacing and weaving between Avenida Pico and Avenida Palizada.

1.7.2.8 Hook Ramps to Via Pico Plaza

This option proposed eliminating the existing SB on- and off-ramps and replacing them with hook ramps that would touch down at Via Pico Plaza to provide access to Avenida Pico. However, this would create a potential issue with interchange spacing and weaving between Avenida Pico and Avenida Palizada. Additionally, it would require a nonstandard access control condition because the ramps connect directly into Via Pico Plaza. For these reasons, this option was eliminated.

1.8 Permits and Approvals Needed

Table 1.8-1 lists the permits, reviews and approvals that would be required for construction of the proposed project.

Table 1.8-1 Required Permits, Reviews, and Approvals

Agency	Permit/Approval	Status
United States Army Corps of Engineers	Section 404 Permit for filling/dredging waters of the United States (Nationwide Permit 14)	Letter or permit will be obtained after certification of environmental document and prior to construction.
United States Fish and Wildlife Service	Section 7 consultation for CAGN. Formal Section 7 Consultation is not expected at this time, but informal consultation is mandatory due to the temporary impact to CAGN.	Consultation will be conducted before certification of environmental document.
California Department of Fish and Game	1602 Lake or Streambed Alteration Agreement	Permit will be obtained after certification of environmental document and prior to construction.
Regional Water Quality Control Board	Section 401 Water Quality Certification	Certification will be obtained after certification of environmental document and prior to construction.
State Water Resources Control Board	Section 402 NPDES/Caltrans NPDES Permit CAS000003 and CAS00002 (General Construction Permit)	The Construction General Permit has been adopted and was effective as of July 1, 2010. The Caltrans NPDES Permit was effective as of July 15, 1999.
Orange County Flood Control District	Encroachment Permit	Letter or permit will be obtained prior to construction.
Orange County Health Care Agency	Well permit for wells and test borings	Letter or permit will be obtained prior to construction.
FHWA	MAR	FHWA approval of the MAR will be obtained before the Project Report is finalized, if needed.

CAGN = coastal California gnatcatcher
FHWA = Federal Highway Administration
MAR = Modified Access Report
NPDES = National Pollutant Discharge Elimination System

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
Land Use (Temporary)	This alternative will have no temporary land use impacts.	This alternative will have no temporary land use impacts	This alternative will have no temporary land use impacts	None required.
Land Use (Permanent)	This alternative would have a substantial impact because it is not consistent with the cities' General Plans and would not result in beneficial safety and circulation effects within the proposed project limits.	This alternative will not have a substantial impact on land use and will not conflict with adopted goals or policies.	This alternative will not have a substantial impact on land use and will not conflict with adopted goals or policies.	None required.
Growth (Temporary)	The No Build Alternative does not require construction; therefore, there would be no temporary impacts on growth-inducing factors.	Build Alternative 2 would not have any temporary impacts on growth-inducing factors since temporary construction does not induce growth.	Build Alternative 4 would not have any temporary impacts on growth-inducing factors since temporary construction does not induce growth.	None required.
Growth (Permanent)	The No Build Alternative is not anticipated to influence the amount, location, and/or distribution of growth or housing and jobs in the Cities of San Clemente, Dana Point, and/or San Juan Capistrano or the County of Orange. However, growth would be slowed in the study area due to increased traffic congestion on I-5.	Build Alternative 2 would accommodate existing operational and capacity deficiencies as well as planned growth and would not foster growth in excess of what is projected due to the lack of vacant land in the study area.	Build Alternative 4 would accommodate existing operational and capacity deficiencies as well as planned growth and would not foster growth in excess of what is projected due to the lack of vacant land in the study area.	None required.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
Community Impacts (Temporary)	The No Build Alternative does not require construction; therefore, there would be no temporary impacts to community character or cohesion.	• Construction activities associated with Build Alternative 2 and both Design Options would result in temporary impacts to community cohesion. However, substantial disruptions to the local neighborhoods in the study area are not anticipated. • Temporary Construction Easements (TCEs) will be required as part of Alternative 2 for construction activities such as equipment/material storage.	• Construction activities associated with Build Alternative 4 and both Design Options would result in temporary impacts to community cohesion. However, substantial disruptions to the local neighborhoods in the study area are not anticipated. • Temporary Construction Easements (TCEs) will be required as part of Alternative 4 for construction activities such as equipment/material storage.	• A Traffic Management Plan will be prepared to address potential detours and access restrictions.
Community Impacts (Permanent)	The No Build Alternative does not require construction; therefore, there would be no permanent impacts to community character or cohesion.	• Design Option A – Partial acquisition of three nonresidential parcels (12,410 sq ft) and two full nonresidential acquisitions in the SW quadrant of the I-5/Avenida Pico interchange in City of San Clemente. • Design Option B – Partial acquisition of four nonresidential parcels (14,650 sq ft) four full nonresidential acquisitions (two in SW quadrant and two in SE quadrant of I-5/Avenida Pico. • The partial acquisitions would not displace employees or cause a business to cease to operate. Additionally, the full acquisitions would not divide or fragment an existing, cohesive neighborhood and therefore would not result in adverse impacts to community cohesion. • Property acquisition and relocations would not result in secondary fiscal impacts, as the businesses acquired would be relocated in the local tax base.	• Design Option A – Partial acquisition of three nonresidential parcels (12,410 sq ft) and two full nonresidential acquisitions in the SW quadrant of the I-5/Avenida Pico interchange in City of San Clemente. • Design Option B – Partial acquisition of four nonresidential parcels (14,650 sq ft) four full nonresidential acquisitions (two in SW quadrant and two in SE quadrant of I-5/Avenida Pico. • The partial acquisitions would not displace employees or cause a business to cease to operate. Additionally, the full acquisitions would not divide or fragment an existing, cohesive neighborhood and therefore would not result in adverse impacts to community cohesion. • Property acquisition and relocations would not result in secondary fiscal impacts, as the businesses acquired would be relocated in the local tax base.	• Impacts to community character and cohesion due to property acquisition and relocations would be minimized under the Uniform Act of 1970.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		• Build Alternative 2 would not cause any permanent disproportionately high and adverse effects on any minority or low-income populations, as per EO 12898 regarding Environmental Justice.	• Build Alternative 4 would not cause any permanent disproportionately high and adverse effects on any minority or low-income populations, as per EO 12898 regarding Environmental Justice.	
Utilities and Emergency Services (Temporary)	The No Build Alternative does not require construction; therefore, there will be no temporary impacts to utilities or emergency services.	Under Build Alternative 2, utility relocations may require short-term, limited interruptions of service.	Under Build Alternative 4, utility relocations may require short-term, limited interruptions of service.	A Traffic Management Plan will be prepared to address potential detours and access restrictions.
Utilities and Emergency Services (Permanent)	The No Build Alternative does not require construction; therefore, there will be no permanent impacts to utilities. However, without project implementation, emergency services may be delayed as traffic congestion worsens and the LOS in the study area declines, resulting in adverse impacts to emergency services.	• Impacted utilities will be protected in place, slightly relocated, or replaced in kind within the project limits. Therefore, there will be no long-term disruptions in service and no permanent impacts to utilities. • Implementation of Build Alternative 2 is anticipated to result in a positive impact to emergency services by improving the LOS within the project limits and reducing emergency response times.	• Impacted utilities will be protected in place, slightly relocated, or replaced in kind within the project limits. Therefore, there will be no long-term disruptions in service and no permanent impacts to utilities. • Implementation of Build Alternative 4 is anticipated to result in a positive impact to emergency services by improving the LOS within the project limits and reducing emergency response times.	• Design, construction and inspection of utilities that would be relocated for the proposed project would be undertaken in accordance with Department requirements. The Department would coordinate with the affected service provider in each instance to ensure that work is during times of low demand and in accordance with the appropriate requirements and criteria.
Traffic and Transportation/ Pedestrian and Bicycle Facilities (Temporary)	The No Build Alternative does not include a construction component and would retain the existing roadway. The No Build Alternative would not result in temporary	• Temporary construction impacts related to the Build Alternatives would occur; however, all improvements, with the exception of the I-5/Avenida Pico interchange, would be accommodated within the existing ROW to the extent feasible.	• Temporary construction impacts related to the Build Alternatives would occur; however, all improvements, with the exception of the I-5/Avenida Pico interchange, would be accommodated within the existing ROW to the extent feasible.	• A Traffic Management Plan will be prepared to address potential detours and access restrictions.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
	impacts to traffic volumes or circulation.	• Due to the temporary nature of the project construction activities affecting traffic and circulation, and the fact that the standard project requirements would be followed to minimize impacts, the proposed project would not result in temporary adverse effects.	• Due to the temporary nature of the project construction activities affecting traffic and circulation, and the fact that the standard project requirements would be followed to minimize impacts, the proposed project would not result in temporary adverse effects.	
Traffic and Transportation/ Pedestrian and Bicycle Facilities (Permanent)	Traffic demand will exceed capacity and speeds will vary greatly, resulting in substantial delays. Therefore, the No Build Alternative would not meet the purpose and need to relieve congestion and reduce delay in 2040.	• Traffic congestion through the project limits is expected to decrease in 2040 with the implementation of Build Alternative 2 under both design options. • Build Alternative 2 would improve pedestrian and bicycle access on Avenida Pico.	• Traffic congestion through the project limits is expected to decrease in 2040 with the implementation of Build Alternative 4 under both design options. • Build Alternative 4 would improve pedestrian and bicycle access on Avenida Pico.	None required.
Visual/Aesthetics (Temporary)	The No Build Alternative would not result in any construction activities. Therefore, there would be no temporary visual impacts associated with this alternative.	• Construction of Build Alternative 2 would expose surfaces, construction debris, equipment, and truck traffic to nearby sensitive viewers. However, these impacts are short-term and would cease upon project completion. Adhering to Department Standard Specifications for Construction would minimize visual impacts during project construction. • Nighttime construction activities in select portions of the project area may occur as part of the proposed project. Light and glare from construction may potentially cause a nuisance to nearby residents and motorists traveling along the I-5 within the project limits. Implementation of minimization measures would reduce temporary	• Construction of Build Alternative 4 would expose surfaces, construction debris, equipment, and truck traffic to nearby sensitive viewers. However, these impacts are short-term and would cease upon project completion. Adhering to Department Standard Specifications for Construction would minimize visual impacts during project construction. • Nighttime construction activities in select portions of the project area may occur as part of the proposed project. Light and glare from construction may potentially cause a nuisance to nearby residents and motorists traveling along the I-5 within the project limits. Implementation of minimization measures would reduce temporary	• Construction lighting types, plans, and placement shall be reviewed at the discretion of the District Landscape Architect.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		light and glare impacts caused by construction activities.	light and glare impacts caused by construction activities.	
Visual/Aesthetics (Permanent)	The No Build Alternative would not result in the development of any of the improvements that are proposed under Build Alternatives 2 and 4. The visual resources within the study area would remain unchanged under the No Build Alternative.	• Permanent impacts that would occur as a result of the implementation of Build Alternative 2 under both design options include additional sources of light and glare associated with vehicle headlights. • No additional traffic signals or street lighting would be installed. • Light and glare impacts from new soundwalls and retaining walls would be introduced along I-5. However, residents in the vicinity of the proposed project would generally experience similar sources of light and glare as compared to existing conditions.	• Permanent impacts that would occur as a result of the implementation of Build Alternative 4 under both design options include additional sources of light and glare associated with vehicle headlights. • No additional traffic signals or street lighting would be installed. • Light and glare impacts from new soundwalls and retaining walls would be introduced along I-5. However, residents in the vicinity of the proposed project would generally experience similar sources of light and glare as compared to existing conditions.	• To maintain the context of the study area (color, form, and texture), the project shall install landscaping along the portion of I-5 in the project vicinity and surrounding area. The landscape concept, plan, and plant palette shall be determined in consultation with, and approved by, the District Landscape Architect during PS&E. The planting plan shall be reviewed and approved by the Department Biologist to avoid the use of invasive plant species. Replacement planting implementation shall be under a separate contract within a two-year period following the completion of construction in accordance with Department policies. In areas where soundwalls are visible from adjacent residential land use, vines and landscape shall be utilized to screen views to the wall. All vines and landscape proposed shall conform with the planting policy requirements of the Department. • Architectural treatment shall be provided to the walls in accordance with the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network. All wall aesthetics shall be approved by the District Landscape Architect. • The District 12 Landscape Architecture Branch shall administer and chair an Aesthetic Design Review Team (ADRT) that includes local agency representatives to ensure that the project landscape and

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				structural elements are in compliance with the aesthetic requirements of the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network.
Cultural Resources (Temporary)	The No Build Alternative does not involve any construction activities or improvements; therefore, no temporary impacts to cultural resources would occur.	Construction activities related to Build Alternative 2 could result in impacts to unknown buried cultural materials or human remains. Any impacts to buried resources would be considered permanent; therefore, there will be no temporary impacts.	Construction activities related to Build Alternative 4 could result in impacts to unknown buried cultural materials or human remains. Any impacts to buried resources would be considered permanent; therefore, there will be no temporary impacts.	None required.
Cultural Resources (Permanent)	The No Build Alternative does not include any changes to the physical environment; therefore, no impacts to cultural resources would occur.	• One historical built residential property located within the APE qualifies as a "historical resource" pursuant to CEQA. However, this property is located outside the Area of Direct Impact (ADI). As such, this property will not be altered or otherwise impacted under Alternative 2 or their design options. • As the ADI is extensively disturbed by development, the likelihood of encountering intact archaeological resources during the construction of Build Alternative 2 and its design options is low. • Although considered unlikely, there is the potential to encounter unknown buried cultural materials or human remains within the APE during construction of Alternative 2 and its design options.	• One historical built residential property located within the APE qualifies as a "historical resource" pursuant to CEQA. However, this property is located outside the Area of Direct Impact (ADI). As such, this property will not be altered or otherwise impacted under Alternative 4 or their design options. • As the ADI is extensively disturbed by development, the likelihood of encountering intact archaeological resources during the construction of Build Alternative 4 and its design options is low. • Although considered unlikely, there is the potential to encounter unknown buried cultural materials or human remains within the APE during construction of Alternative 4 and its design options.	• If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area shall be diverted until a qualified archaeologist can assess the nature and significance of the find. • If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner shall notify the Native American Heritage Commission, which shall then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains shall also contact the District 12 Environmental Branch Chief so that they may work with the MLD on the respectful

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
Hydrology and Floodplain (Temporary)	The No Build Alternative would not result in the construction of any improvements to the Segunda Deshecha Canada Creek. Therefore, the No Build alternative would not result in temporary adverse impacts related to natural and beneficial floodplain values.	• Build Alternative 2 –Design Option B: Construction equipment would operate in the floodplain during the extension of the arch culvert over Segunda Deshecha Canada Creek. • Construction activities for Build Alternative 2 have the potential to impact the intermittent beneficial water resource values of the Segunda Deshecha Canada Creek by impacting water quality. However, with implementation of BMPs, construction of Build Alternative 2 would not result in short-term adverse impacts to natural and beneficial floodplain values.	• Build Alternative 4 –Design Option B: Construction equipment would operate in the floodplain during the extension of the arch culvert over Segunda Deshecha Canada Creek. • Construction activities for Build Alternative 4 have the potential to impact the intermittent beneficial water resource values of the Segunda Deshecha Canada Creek by impacting water quality. However, with implementation of BMPs, construction of Build Alternative 4 would not result in short-term adverse impacts to natural and beneficial floodplain values.	BMPs including erosion control measures shall be implemented during project construction to reduce impacts to water quality and beneficial water resource values.
Hydrology and Floodplain (Permanent)	The No Build Alternative would not result in the construction of any improvements to the Segunda Deshecha Canada Creek. Therefore, the No Build Alternative would not result in permanent adverse impacts related to floodplains.	• Build Alternative 2 - Design Option A would not result in any 100-year floodplain or floodway encroachments; therefore, no impacts would result from implementation of Build Alternative 2 with Design Option A. • Build Alternative 2 - Design Option B would result in the arch culvert over Segunda Deshecha Canada Creek being extended 50 feet to the northeast. As a result, the slope of the existing trapezoidal channel upstream of the extended arch culvert would be modified from 1.1 percent to three percent for approximately 20 feet to connect to the proposed and existing facilities. These culvert improvements would result in a transverse	• Build Alternative 4 - Design Option A would not result in any 100-year floodplain or floodway encroachments; therefore, no impacts would result from implementation of Build Alternative 4 with Design Option A. • Build Alternative 4 - Design Option B would result in the arch culvert over Segunda Deshecha Canada Creek being extended 50 feet to the northeast. As a result, the slope of the existing trapezoidal channel upstream of the extended arch culvert would be modified from 1.1 percent to three percent for approximately 20 feet to connect to the proposed and existing facilities. These culvert improvements would result in a transverse	• During final project design, the agency shall ensure that the project engineer prepares a Final Location Hydraulic Study (LHS) based on an updated hydraulic model for the Segunda Deshecha Canada 100-year floodway. In addition, a detailed survey of the existing channel facilities will be conducted to determine actual as-built conditions. The results of the survey will be incorporated into an updated hydraulic model for both existing and proposed conditions. • During final project design, the agency shall process a Conditional Letter of Map Revision (CLOMR) for the Segunda Deshecha Canada 100-year floodway through the City of San Clemente, the Capistrano Unified School District, and the

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		encroachment on the Segunda Deshecha Canada 100-year floodway. • The arch culvert extension would result in a maximum increase of 0.13 ft of the base flood elevation in the Segunda Deshecha Canada floodway. However, a 100-year flood would continue to be contained within the Segunda Deshecha Canada channel. • The proposed project would not increase the risk of flood damage or result in flood –related interruption of emergency services or routes. Therefore, there would be no adverse flood-related risks to life or property associated with implementation of Alternative 2 and its design options.	encroachment on the Segunda Deshecha Canada 100-year floodway. • The arch culvert extension would result in a maximum increase of 0.13 ft of the base flood elevation in the Segunda Deshecha Canada floodway. However, a 100-year flood would continue to be contained within the Segunda Deshecha Canada channel. • The proposed project would not increase the risk of flood damage or result in flood –related interruption of emergency services or routes. Therefore, there would be no adverse flood-related risks to life or property associated with implementation of Alternative 4 and its design options.	Federal Emergency Management Agency (FEMA). The culvert improvements within the Segunda Deshecha Canada 100-year floodway shall not be constructed until the CLOMR is approved by the agencies listed above. • Upon completion of construction, the agency shall process a Letter of Map Revision (LOMR) for the Segunda Deshecha Canada 100-year floodway through the City of San Clemente, the Capistrano Unified School District, and the Federal Emergency Management Agency (FEMA).
Water Quality and Storm Water Runoff (Temporary)	The No Build Alternative does not contain any construction elements; therefore, would not result in any short-term water quality impacts.	• Build Alternative 2 - Design Option A would temporarily disturb an area totaling 132.3 acres (ac). • Build Alternative 2 – Design Option B would temporarily disturb an area totaling 134.4 ac. • If construction BMPs are properly designed, implemented, and maintained as presented in Section 2.9.4, no adverse water quality impacts would occur during construction. • Though not anticipated, groundwater dewatering may be necessary to construct the bridge structure footings and culvert extensions. Compliance with the De Minimus Permit (Order Number R9-2008-0002, NPDES Number CAG919002) would avoid	• Build Alternative 4 - Design Option A would temporarily disturb an area totaling 126.1 ac. • Build Alternative 4 – Design Option B would temporarily disturb an area totaling 128.1 ac. • If construction BMPs are properly designed, implemented, and maintained as presented in Section 2.9.4, no adverse water quality impacts would occur during construction. • Though not anticipated, groundwater dewatering may be necessary to construct the bridge structure footings and culvert extensions. Compliance with the De Minimus Permit (Order Number R9-2008-0002, NPDES Number CAG919002) would avoid	Construction site BMPs will be conducted.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		adverse impacts to water quality via dewatering.	adverse impacts to water quality via dewatering.	
Water Quality and Storm Water Runoff (Permanent)	Under the No Build Alternative, there would not be an increase in impervious area or change in land use on I-5. Therefore, the No Build Alternative would not result in an increase in long-term pollutant loading; however, existing runoff would continue to remain untreated.	• Build Alternative 2 – Design Option A would result in the permanent increase of 15.4 ac of impervious surface resulting in an increase of runoff and pollutant loading. • Build Alternative 2 – Design Option B would result in the permanent increase of 16.0 ac of impervious surface resulting in an increase of runoff and pollutant loading. • The increase in impervious area would be relatively small (much less than one percent) compared to the urbanized area within the entire San Juan Creek and San Clemente Coastal Streams watersheds. • As part of the proposed project, treatment control BMPs must be implemented to target the constituents of concern in the storm water runoff from the study area. Therefore, Build Alternative 2 and its design options will result in no adverse impacts to water quality.	• Build Alternative 4 – Design Option A would result in the permanent increase of 12.0 ac of impervious surface resulting in an increase of runoff and pollutant loading. • Build Alternative 4 – Design Option B would result in the permanent increase of 12.4 ac of impervious surface resulting in an increase of runoff and pollutant loading. • The increase in impervious area would be relatively small (much less than one percent) compared to the urbanized area within the entire San Juan Creek and San Clemente Coastal Streams watersheds. • As part of the proposed project, treatment control BMPs must be implemented to target the constituents of concern in the storm water runoff from the study area. Therefore, Build Alternative 4 and its design options will result in no adverse impacts to water quality.	• The proposed project will comply with the provisions of the Department Statewide NPDES Permit (Order Number 99-06-DWQ, NPDES Number CAS00003) and the NPDES General Permit, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activities (Order Number 2009-0009-DWQ, NPDES Number CAS000002) and any subsequent permit in effect at the time of construction. • A SWPPP shall be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include construction site BMPs to control pollutants, such as sediment control, catch basin inlet protection, construction materials management, and nonstorm water BMPs. All construction site BMPs shall follow the latest edition of the *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* (Department 2003) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstorm water BMPs.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				• Construction site dewatering, if required, must comply with the General Waste Discharge Requirements for Discharges to Surface Waters Within the San Diego Region Except for San Diego Bay (Order Number R9-2008-0002 NPDES Number CAG919002), and any subsequent updates to the permit at the time of construction. Dewatering BMPs must be used to control sediment and pollutants, and the discharges must comply with the WDRs issued by the San Diego RWQCB. This will include submission of an NOI to the San Diego RWQCB at least three months before the start of dewatering and compliance with all applicable provisions in the De Minimus Permit, including water sampling, analysis, and reporting of dewatering-related discharges. • The Department-approved treatment BMPs will be implemented to the MEP consistent with the requirements of the NPDES permit, Statewide Stormwater Permit, WDRs for the State of California, Department of Transportation Properties, Facilities, and Activities (Order Number 99-06-DWQ, NPDES Number CAS000003), and any subsequent permits. Treatment control BMPs may include biofiltration strips/swales, infiltration basins, detention devices, dry weather flow diversion, media filters, and wet basins. • Design pollution prevention BMPs shall be implemented, such as preservation of existing vegetation; slope/surface protection systems (permanent soil stabilization); and concentrated flow

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protection/velocity dissipation devices.
Geology/Soils/ Seismicity/ Topography (Temporary)	No improvements would be made under the No Build Alternative. Therefore, the No Build Alternative would result in no short-term/temporary impacts to geological, mineral, or soil resources.	A temporary increase in erosion may occur during construction. However, with implementation of erosion control BMPs, no potential adverse short-term/temporary water quality impacts would occur.	A temporary increase in erosion may occur during construction. However, with implementation of erosion control BMPs, no potential adverse short-term/temporary water quality impacts would occur.	Erosion control BMPs shall be used during construction.
Geology/Soils/ Seismicity/ Topography (Permanent)	The No Build Alternative does not involve any construction activities and would not alter existing geologic or soil conditions; therefore, it would not result in any adverse impacts to geological, mineral, or soil resources.	• The proposed project is expected to have minimal impact on geologic and topographic conditions with incorporation of the final design recommendations of the Final Geotechnical Design Report (GDR). • Build Alternative 2 would not increase exposure to geologic hazards such as tsunami or seiche due to the distance from an enclosed body of water or the coastline. • The potential for surface fault rupture hazard within the project limits due to primary movement along a known fault is considered low. However, the Department considers the possibility of seismic activity and includes standard design features to minimize and avoid potential adverse impacts from seismic events.	• The proposed project is expected to have minimal impact on geologic and topographic conditions with incorporation of the final design recommendations of the Final Geotechnical Design Report (GDR). • Build Alternative 4 would not increase exposure to geologic hazards such as tsunami or seiche due to the distance from an enclosed body of water or the coastline. • The potential for surface fault rupture hazard within the project limits due to primary movement along a known fault is considered low. However, the Department considers the possibility of seismic activity and includes standard design features to minimize and avoid potential adverse impacts from seismic events.	During final design, the Department shall prepare a Final GDR, SFRs, and MRs for the proposed project. The Final GDR, SFRs, and MRs will be written after detailed site sampling and testing and will include design recommendations and hazard minimization recommendations. The recommendations of the Final GDR, SFRs, and MRs shall be incorporated into the final design for the proposed project. The Final GDR, SFRs, and MRs will minimize potential impacts to the project related to corrosive soils, seismic hazards, landslides, liquefaction and slope instability.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		• Implementation of measures recommended by the Final GDR, Structure Foundation Reports (SFRs) and Materials Reports (MRs) will ensure that no adverse impacts from landslides or slope instability would occur under Build Alternative 2. • Alternative 2 is located in an area that may be subject to liquefaction. Implementation of measures recommended by the Final GDR, SFRs, and MRs will ensure that no adverse impacts from liquefaction would occur under Build Alternative 2. • Although the corrosion potential to concrete for soils located within the project limits have been classified by the USDA Soil Conservation Service as low to medium for concrete materials, the corrosion potential of soils within the study area for uncoated steel is classified as high. The Final GDR will ensure that no adverse impacts from corrosion would occur under Build Alternative	• Implementation of measures recommended by the Final GDR, Structure Foundation Reports (SFRs) and Materials Reports (MRs) will ensure that no adverse impacts from landslides or slope instability would occur under Build Alternative 4. • Alternative 4 is located in an area that may be subject to liquefaction. Implementation of measures recommended by the Final GDR, SFRs, and MRs will ensure that no adverse impacts from liquefaction would occur under Build Alternative 4. • Although the corrosion potential to concrete for soils located within the project limits have been classified by the USDA Soil Conservation Service as low to medium for concrete materials, the corrosion potential of soils within the study area for uncoated steel is classified as high. The Final GDR will ensure that no adverse impacts from corrosion would occur under Build Alternative	
Paleontology (Temporary)	The No Build Alternative does not include any changes to the physical environment; therefore, no temporary impacts to paleontological resources would occur.	Any impacts to paleontological resources would be considered permanent; therefore, no temporary impacts would occur as a result of Build Alternative 2.	Any impacts to paleontological resources would be considered permanent; therefore, no temporary impacts would occur as a result of Build Alternative 4.	None required.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
Paleontology (Permanent)	The No Build Alternative would not include any excavation in the study area. Therefore, the No Build Alternative would not result in adverse impacts related to paleontological resources.	Sediments in the study area have the potential to contain significant, unrenewable paleontological resources, and it is likely that paleontological localities will be encountered during project excavation. A Paleontological Mitigation Program (PMP) will be implemented during construction to reduce impacts to any paleontological resources that may be present within the study area.	Sediments in the study area have the potential to contain significant, unrenewable paleontological resources, and it is likely that paleontological localities will be encountered during project excavation. A Paleontological Mitigation Program (PMP) will be implemented during construction to reduce impacts to any paleontological resources that may be present within the study area.	Prior to construction activities, the Department shall ensure that a PMP is prepared and adhered to during construction of the project portions that are identified as having high paleontological sensitivity. For more detail on what this program includes, please refer to Section 2.11.4
Hazardous Waste/Materials (Temporary)	The No Build Alternative would not involve ground or structure disturbance; therefore, no temporary impacts related to hazardous waste materials would occur.	• Alternative 2 would involve disturbance of existing soils and structures; therefore, hazardous soil contaminants (aerially deposited lead [ADL], lead-based paint [LBP], and gasoline) and structure materials (polychlorinated biphenyls [PCBs], mercury, LBP, and asbestos containing materials [ACM]) may be encountered during project construction. • There is also a potential that gasoline-impacted soil could be encountered during excavation activities near or at the Texaco Shell (both design options) and the Exxon Mobile Oil Corporation (Design Option B only). • Standard provisions and requirements would apply during project construction for treatment and handling of these materials.	• Alternative 4 would involve disturbance of existing soils and structures; therefore, hazardous soil contaminants (aerially deposited lead [ADL], lead-based paint [LBP], and gasoline) and structure materials (polychlorinated biphenyls [PCBs], mercury, LBP, and asbestos containing materials [ACM]) may be encountered during project construction. • There is also a potential that gasoline-impacted soil could be encountered during excavation activities near or at the Texaco Shell (both design options) and the Exxon Mobile Oil Corporation (Design Option B only). • Standard provisions and requirements would apply during project construction for treatment and handling of these materials.	• During Plans, Specifications and Estimates (PS&E), sampling for ADL shall be conducted within unpaved locations adjacent to the existing roadway ROW within the study area if such locations have not been tested. • During PS&E, testing and removal of yellow traffic stripes and pavement marking material will be performed in accordance with Standard Special Provision (SSP) 14-100. • Prior to completion of the Project Approval and Environmental Document (PA&ED) phase, an asbestos survey and sampling shall be conducted for existing bridges proposed to be demolished or modified. The survey shall be conducted in conformance with the United States Environmental Protection Agency National Emissions Standards for Hazardous Air Pollutants (EPA NESHAPS) 40 Code of Federal Regulations (CFR) regulation and South Coast Air Quality Management District (SCAQMD) Rule 1403. Additionally, notification of the SCAQMD prior to any structure renovation or demolition is

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				mandatory according to Rule 1403 (d)(1)(B). • A survey and sampling for asbestos, LBP, and PCB-, mercury-, and chlorofluorocarbon (CFC)-containing equipment should be conducted during the early stages of PS&E on building structures that are located within parcels that will be fully acquired as part of the proposed project. The surveys should be conducted in conformance with the EPA NESHAP 40 CFR regulation, and SCAQMD Rule 1403. Additionally, any notification of the SCAQMD prior to any structure renovation or demolition is mandatory according to Rule 1403 (d)(1)(B). • During the early stages of PS&E, transformers that will be removed or relocated as part of the proposed project shall be sampled for PCBs. • If signs of potential impact (odors, discolored soil, etc.) are observed during construction activity, construction shall cease and the California Department of Transportation's Unknown Procedures for Construction should be followed. Should groundwater be encountered during construction activities, or if construction dewatering is necessary, then sampling and analysis of groundwater shall be conducted to identify the appropriate management and disposal of the groundwater. • Soil sampling will be conducted during the early stages of PS&E at 530 Avenida Pico

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				and 600 Avenida Pico to determine any residual soil contamination on these properties.
Hazardous Waste/Materials (Permanent)	The No Build Alternative would not change the existing physical environment; therefore, no permanent impacts would occur.	Routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the proposed project will not result in adverse impacts related to hazardous waste or materials.	Routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the proposed project will not result in adverse impacts related to hazardous waste or materials.	None required.
Air Quality (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no impact to air quality.	• Project construction has the potential to create temporary air quality impacts from exhaust emissions and fugitive dust emissions. • Compliance with SCAQMD Rule 403 including Best Available Control Measures (BACMs) and the Department's Standard Specifications for construction will reduce the temporary impacts.	• Project construction has the potential to create temporary air quality impacts from exhaust emissions and fugitive dust emissions. • Compliance with SCAQMD Rule 403 including Best Available Control Measures (BACMs) and the Department's Standard Specifications for construction will reduce the temporary impacts.	• To reduce fugitive dust emissions, the construction contractor shall adhere to the requirements of South Coast Air Quality Management District (SCAQMD) Rule 403 during construction. These Best Available Control Measures (BACMs) specified in SCAQMD's Rule 403 shall be incorporated into the project construction. • During clearing, grading, earth-moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures using the following procedures, as specified in SCAQMD's Rule 403. o All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. o All material transported on site or off site shall be either sufficiently watered or

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				securely covered to prevent excessive amounts of dust. o The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust. o Visible dust beyond the property line emanating from the project shall be prevented to the maximum extent feasible. These control techniques shall be indicated in project specifications. • Project grading plans shall show the duration of construction. Ozone precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications. • All trucks that are to haul excavated or graded material on site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads. • The contractor shall adhere to Caltrans Standard Specifications for Construction (Sections 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]). • Should the project geologist determine that asbestos-containing materials (ACMs) are

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				present at the project study area during final inspection prior to construction, the appropriate methods shall be implemented to remove ACMs.
Air Quality (Permanent)	Traffic congestion would continue to increase under the No Build Alternative. Long-term mobile emissions generated by vehicle trips would be greater under the No Build Alternative. Since the No Build Alternative would not improve air quality through a reduction in congestion, its air quality impacts are considered adverse.	Build Alternative 2 is not expected to generate any additional traffic. Regional traffic trips would remain similar. Therefore, no new long-term regional emissions would result from implementation of Build Alternative 2.	Build Alternative 4 is not expected to generate any additional traffic. Regional traffic trips would remain similar. Therefore, no new long-term regional emissions would result from implementation of Build Alternative 4.	None required.
Noise (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no impact to noise.	• Project construction has the potential to create temporary noise impacts from the transport of construction crew, equipment and materials, and noise generated during excavation, grading and roadway construction. • Construction-related groundborne vibration could result from construction equipment and activities such as pile driving. • However, compliance with the Department's Standard Specifications, "Sound Control Requirements" will reduce these impacts to a level that will not be considered adverse.	• Project construction has the potential to create temporary noise impacts from the transport of construction crew, equipment and materials, and noise generated during excavation, grading and roadway construction. • Construction-related groundborne vibration could result from construction equipment and activities such as pile driving. • However, compliance with the Department's Standard Specifications, "Sound Control Requirements" will reduce these impacts to a level that will not be considered adverse.	• Construction activities shall be limited to the days and hours specified in the Municipal Codes of the Cities of San Clemente, Dana Point, and San Juan Capistrano as well as the County Code and Ordinances for the County of Orange. • In addition, the control of noise from construction activities shall conform to the California Department of Transportation (Department) Standard Specifications, Section 14-8.02, "Noise Control," and also by Standard Provision S5-310. The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBA Leq(h) at a distance of 50 feet (ft). The contractor shall use an alternative warning method instead

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				of a sound signal unless required by safety laws. In addition, the Contractor shall equip all internal combustion engines with a manufacturer-recommended muffler and shall not operate any internal combustion engine on the job site without the appropriate muffler.
Noise (Permanent)	The noise abatement criteria (NAC) are currently exceeded at many study area receptors under existing conditions, and noise levels at these receptors would continue to exceed the NAC in the future but are still considered not to be adverse.	Traffic noise at certain sensitive receptors approaches or exceeds the NAC. However, with implementation of noise abatement, the impact is not considered to be adverse.	Traffic noise at certain sensitive receptors approaches or exceeds the NAC. However, with implementation of noise abatement, the impact is not considered to be adverse.	• SB 2-11/4-11, SB 2-15/4-15 and SB 2-164-16 were found to be reasonable and feasible and proposed to be constructed as part of the Build Alternatives to protect sensitive receptors. • Prior to completion of PA/ED, the sound barriers that are determined to be reasonable and feasible shall be coordinated with the affected property owners. • Unusual and extraordinary abatement measures, such as a feasible sound barrier that has an estimated construction cost exceeding the total reasonable allowance or interior noise abatement measures, will be considered for the residence represented by Receivers R-417, R-420, and R-421 under Alternatives 2 and 4. Unusual and extraordinary abatement measures will also be considered at Receiver R-373, which would experience a severe traffic noise impact if, during final design, the sound barrier shielding this receiver is found to exceed the total reasonable allowance or is not approved during the sound barrier survey process. In addition, other measures including, but not limited to, double-paned windows, may be used. Unusual and extraordinary abatement measures would only be

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				provided if the Department agrees to fund them. If interior noise abatement is recommended by the Department, an interior noise analysis will be conducted to determine whether interior noise abatement is feasible. If interior noise abatement is feasible, such abatement measures will be offered to the affected property owners.
Natural Communities (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to natural communities.	Construction of Build Alternative 2 will result in a direct temporary impact to 0.31 ac of CSS for Design Option A and 0.32 ac of CSS for Design Option B. A small quantity of these temporary impacts to CSS (0.018) would be within CAGN designated critical habitat. Also, construction of Build Alternative 2 may result in indirect temporary impacts to CSS and riparian/riverine habitats during construction due to increased noise, traffic, and litter. However, with implementation of Minimization and Avoidance Measures, source control, and BMPs, indirect temporary impacts are not anticipated.	Construction of Build Alternative 4 will result in a direct temporary impact to 0.31 ac of CSS for Design Option A and 0.32 ac of CSS for Design Option B. A small quantity of these temporary impacts to CSS (0.018) would be within CAGN designated critical habitat. Also, construction of Build Alternative 4 may result in indirect temporary impacts to CSS and riparian/riverine habitats during construction due to increased noise, traffic, and litter. However, with implementation of Minimization and Avoidance Measures, source control, and BMPs, indirect temporary impacts are not anticipated.	• Prior to clearing or construction, highly visible barriers (such as orange construction fencing) will be installed around riparian and riverine communities adjacent to the project disturbance limits to designate Environmentally Sensitive Areas (ESAs) to be preserved. No grading or fill activity of any type will be permitted within ESAs. In addition, no construction activities, materials, or equipment will be allowed within ESAs. All construction equipment will be operated in such a manner as to prevent accidental damage to nearby ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed in ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of upstream fill material in areas where vegetation is immediately adjacent to planned grading activities. • In order to avoid impacts to nesting birds, any native or exotic vegetation removal, tree trimming activities, or bridge demolition will occur outside of the nesting season. The nesting season is from February 15 to August 31. In the event that vegetation clearing is necessary during the nesting season, a qualified biologist will conduct a

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				preconstruction survey to identify the locations of nests. Should nesting birds be found, an exclusionary buffer will be established by the biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction or clearing will not be conducted in this zone until the biologist determines that the young have fledged or the nest is no longer active. • A biologist will monitor all vegetation clearing and any other construction activities (at the discretion of a qualified biologist) for the duration of the project in areas adjacent to ESAs to flush any wildlife species present prior to construction and to ensure compliance with and proper implementation of vegetation removal, Best Management Practices (BMPs), and ESAs, and that all biological resource-related avoidance and minimization measures are properly adhered to. • Weed control will be implemented and temporarily impacted areas will be revegetated with plant species that prevent the introduction or spread of invasive species. Eradication strategies will be implemented should an invasion of nonnative plant species occur. • All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated nonsensitive upland habitat areas. The designated upland areas will be located so as to prevent runoff from any spills from entering waters of the United

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
				States. • A construction Storm Water Pollution Prevention Plan (SWPPP) and soil erosion and sedimentation plan will be developed to minimize erosion and identify specific pollution prevention measures that will eliminate or control potential point and nonpoint pollution sources on site during construction and operation. The SWPPP will identify specific BMPs to be implemented during construction so as not to cause or contribute to an exceedance of any water quality standard. In addition, the SWPPP will contain provisions for changes to the plan, such as alternative mechanisms, if necessary, during project design and/or construction to achieve the stated goals and performance standards.
Natural Communities (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent impacts to natural communities.	• Build Alternative 2 would result in direct permanent impacts to 0.5 ac of CSS and 0.07 ac of riparian/riverine habitat through disturbance and/or removal of existing vegetation. • Site Design, Source Control, and Treatment Best Management Practices (BMPs) will be incorporated into the project to help avoid, minimize, and mitigate potential indirect adverse impacts to CSS and riparian/riverine communities. Therefore, Build Alternative 2 is not expected to substantially increase indirect permanent impacts to CSS and riparian/riverine communities.	• Build Alternative 4 would result in direct permanent impacts to 0.4 ac of CSS and 0.07 ac of riparian/riverine habitat through disturbance and/or removal of existing vegetation. • Site Design, Source Control, and Treatment Best Management Practices (BMPs) will be incorporated into the project to help avoid, minimize, and mitigate potential indirect adverse impacts to CSS and riparian/riverine communities. Therefore, Build Alternative 4 is not expected to substantially increase indirect permanent impacts to CSS and riparian/riverine communities.	For coastal sage scrub (CSS) occupied by coastal California gnatcatcher (CAGN) or in CAGN designated critical habitat, the mitigation ratios will be consistent with the United States Fish and Wildlife (USFWS) standards. Compensatory mitigation may include off-site acquisition of conservation lands and restoration efforts to enhance or create CSS which could be accomplished through participation in the Natural Community Conservation Plan/Habitat Conservation Plan/Master Streambed Alteration Agreement (NCCP/HCP/MSAA) being established by Measure M2.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
Wetlands or Other Waters of the U.S. (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to wetlands or other waters of the U.S.	Build Alternative 2 is not expected to result in any temporary impacts to areas subject to jurisdiction by the ACOE, CDFG, or RWQCB. Should that change, temporary impacts will be limited to incidental encroachment; otherwise, impacts will be considered permanent.	Build Alternative 4 is not expected to result in any temporary impacts to areas subject to jurisdiction by the ACOE, CDFG, or RWQCB. Should that change, temporary impacts will be limited to incidental encroachment; otherwise, impacts will be considered permanent.	• Please see measures for Water Quality. • Please see measures above for Natural Communities. • Prior to clearing or construction (including any ground-disturbing activities), the CDFG and ACOE will be consulted and, if required, a Lake or Streambed Alteration Agreement with the CDFG, a Section 404 permit from the ACOE, and a Section 401 certification from the RWQCB will be obtained.
Wetlands or Other Waters of the U.S. (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent impacts to wetlands or other waters of the U.S.	Build Alternative 2 is expected to permanently impact a totally of 0.14 ac of jurisdictional and nonjurisdictional nonwetland waters for Design Option A and 0.15 ac for Design Option B.	• Build Alternative 4 is expected to permanently impact a totally of 0.14 ac of jurisdictional and nonjurisdictional nonwetland waters for Design Option A and 0.15 ac for Design Option B. • Build Alternative 4 with Option B is expected to permanently impact 0.1 ac of potential CDFG jurisdictional areas.	The majority of existing riparian/riverine habitats fall under the regulatory jurisdiction of the United States Army Corps of Engineers (ACOE), pursuant to Section 404 of the Clean Water Act (CWA), the California Department of Fish and Game (CDFG), pursuant to Section 1600 of the California Fish and Game Code and the RWQCB pursuant to Section 401 of the CWA. Compensatory mitigation for riparian/riverine habitats will be required for ACOE Section 404 and CDFG Section 1600 permitting. Impacts to riparian/riverine habitats subject to ACOE and CDFG jurisdiction shall be mitigated at a mitigation-to-effect ratio consistent with the ACOE and CDFG policies for no net loss of riparian/ riverine habitat (e.g., wetlands) standards. This mitigation could be accomplished through participation in the NCCP/HCP/MSAA being established by Measure M2.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
Plant Species (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to plant species.	Botanical surveys to establish the presence/absence of plant species in the BSA were conducted during the appropriate blooming period in 2010. The proposed project is not expected to affect any of those species because they are considered absent from the BSA.	Botanical surveys to establish the presence/absence of plant species in the BSA were conducted during the appropriate blooming period in 2010. The proposed project is not expected to affect any of those species because they are considered absent from the BSA.	None required.
Plant Species (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent impacts to plant species.	Botanical surveys to establish the presence/absence of plant species in the BSA were conducted during the appropriate blooming period in 2010. The proposed project is not expected to affect any of those species because they are considered absent from the BSA.	Botanical surveys to establish the presence/absence of plant species in the BSA were conducted during the appropriate blooming period in 2010. The proposed project is not expected to affect any of those species because they are considered absent from the BSA.	None required.
Animal Species (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to animal species.	• Build Alternative 2 is expected to have indirect and temporary impacts to special-status grassland and open habitat species through the loss of potential habitat. • Temporary impacts to Yuma myotis and other bridge- and crevice-dwelling species would include temporary indirect disturbance (such as noise, dust, night lighting, and human encroachment) from construction. Construction could also temporarily impede access to roost sites (existing and future) in the crevices of bridges, culverts, and overhead structures. • Direct temporary impacts to birds nesting within or adjacent to the BSA may occur if construction, particularly vegetation clearing, occurs during the nesting season.	• Build Alternative 4 is expected to have indirect and temporary impacts to special-status grassland and open habitat species through the loss of potential habitat. • Temporary impacts to Yuma myotis and other bridge- and crevice-dwelling species would include temporary indirect disturbance (such as noise, dust, night lighting, and human encroachment) from construction. Construction could also temporarily impede access to roost sites (existing and future) in the crevices of bridges, culverts, and overhead structures. • Direct temporary impacts to birds nesting within or adjacent to the BSA may occur if construction, particularly vegetation clearing, occurs during the nesting season.	• A qualified bat biologist will survey the project disturbance limits in June, prior to construction, to assess the potential for the (BSA use for maternity roosting, since maternity roosts are generally formed in the late spring. The qualified bat biologist will also conduct preconstruction surveys because bat roosts can change seasonally. The surveys will include a combination of structure inspection, sampling, exit counts, and acoustic surveys. • To avoid direct mortality to bats roosting in areas subject to impacts from construction activities, any structure with potential bat habitat will have temporary bat exclusion devices installed under the supervision of a qualified bat biologist prior to the initiation of construction activities. Exclusion will be conducted during the fall (September or October) to avoid trapping flightless young inside during the summer months or

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		• With the exception of nesting/burrowing birds and bats, the special-status animal species are expected to move out of the area during construction and with implementation of Minimization and Avoidance Measures; temporary impacts to special-status animal species are not anticipated.	• With the exception of nesting/burrowing birds and bats, the special-status animal species are expected to move out of the area during construction and with implementation of Minimization and Avoidance Measures; temporary impacts to special-status animal species are not anticipated.	hibernating individuals during the winter. Such exclusion efforts must be continued to keep the structures free of bats until the completion of construction. All bat exclusion techniques will be coordinated between the Department District Biologist and the resource agencies. • All work conducted on bridges will take place during the day to the extent feasible. If it is not feasible to conduct this work during daylight hours, impacts will be minimized by directing lighting and noise away from night roosting areas as much as possible. • Riparian vegetation adjacent to bat roosting sites will be kept intact to the extent feasible.
Animal Species (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent impacts to animal species.	• Direct permanent impacts such as the direct removal of nests may occur (e.g., during vegetation clearing). Indirect permanent impacts may also occur such as nest failure by excessive disturbance of the nesting birds (e.g., from excessive noise and disruption from increased human activities. • Build Alternative 2 is expected to potentially result in indirect permanent impacts to special-status animal species through the removal of potential habitat. However, because these species are expected to move out of the area during construction, no direct permanent impacts are expected. Therefore, project impacts for these species are the same as	• Direct permanent impacts such as the direct removal of nests may occur (e.g., during vegetation clearing). Indirect permanent impacts may also occur such as nest failure by excessive disturbance of the nesting birds (e.g., from excessive noise and disruption from increased human activities. • Build Alternative 4 is expected to potentially result in indirect permanent impacts to special-status animal species through the removal of potential habitat. However, because these species are expected to move out of the area during construction, no direct permanent impacts are expected. Therefore, project impacts for these species are the same as	None required.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
		those described for natural communities and are not considered adverse.	those described for natural communities and are not considered adverse.	
Threatened and Endangered Species (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to threatened and endangered species.	Build Alternative 2 would have potential indirect temporary impacts from construction due to the increased exposure of arroyo toad, white-tailed kite, California gnatcatcher (CAGN), and least Bells' vireo (LBV) to noise, vibration, dust, and human presence. Temporary impacts to 0.018 ac of CAGN designated critical habitat are expected to occur as a result of temporary construction easements during project implementation. However, no CAGN were observed during focused surveys in or adjacent to this area. Thus, project implementation would result in a "no effect" or "may affect but is not likely to adversely affect" finding from the USFWS for CAGN and its designated critical habitat. Other than this area, no other direct temporary impacts to CAGN or CAGN-occupied habitat are expected to occur as a result of project implementation. With implementation of minimization measures, temporary impacts to threatened and endangered species are not considered adverse.	Build Alternative 4 would have potential indirect temporary impacts from construction due to the increased exposure of arroyo toad, white-tailed kite, California gnatcatcher (CAGN), and least Bells' vireo (LBV) to noise, vibration, dust, and human presence. Temporary impacts to 0.018 ac of CAGN designated critical habitat are expected to occur as a result of temporary construction easements during project implementation. However, no CAGN were observed during focused surveys in or adjacent to this area. Thus, project implementation would result in a "no effect" or "may affect but is not likely to adversely affect" finding from the USFWS for CAGN and its designated critical habitat. Other than this area, no other direct temporary impacts to CAGN or CAGN-occupied habitat are expected to occur as a result of project implementation. With implementation of minimization measures, temporary impacts to threatened and endangered species are not considered adverse.	• See measures above for Natural Communities, Wetlands and Other Waters of the U.S., and Animal Species. • Shielded lighting will be used for any nighttime construction adjacent to San Juan Creek and CSS habitat to avoid and minimize artificial night-lighting effects.
Threatened and Endangered Species (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent	Although direct permanent impacts to LBV are not expected to occur as a result of project implementation, project impacts to riparian/riverine habitat that may potentially be used by LBV for foraging may indirectly impact LBV through loss of	Although direct permanent impacts to LBV are not expected to occur as a result of project implementation, project impacts to riparian/riverine habitat that may potentially be used by LBV for foraging may indirectly impact LBV through loss of	See measures above for Natural Communities, Wetlands and Other Waters of the U.S. and Animal Species.

Table 1.8-2 Summary of Impacts

Potential Impact	No Build Alternative	Build Alternative 2	Build Alternative 4	Avoidance, Minimization, and/or Mitigation Measures
	impacts to threatened and endangered species.	potential habitat.	potential habitat.	
Invasive Species (Temporary)	The No Build Alternative does not involve any construction. Therefore, there would be no temporary impacts to invasive species.	The project has the potential to spread invasive species by the entering and existing of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed is spread along the highway.	The project has the potential to spread invasive species by the entering and existing of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed is spread along the highway.	In compliance with EO 13112, weed control will be performed to minimize the importation of nonnative plant material during and after construction. Eradication strategies would be employed should an invasion occur. Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications.
Invasive Species (Permanent)	The No Build Alternative does not involve any construction. Therefore, there would be no permanent impacts to invasive species.	Invasive species have the potential to be imported to the project area by contaminated construction equipment or imported materials such as soils. The dispersal of invasive species propagules in the BSA may be furthered by roadway vehicles, with inadvertent mixing of invasive species in seed mixes applied adjacent to the highway and the spread of invasive species during weed-control programs such as mowing. The increased risk of introduction or spread of invasive species would occur only during construction.	Invasive species have the potential to be imported to the project area by contaminated construction equipment or imported materials such as soils. The dispersal of invasive species propagules in the BSA may be furthered by roadway vehicles, with inadvertent mixing of invasive species in seed mixes applied adjacent to the highway and the spread of invasive species during weed-control programs such as mowing. The increased risk of introduction or spread of invasive species would occur only during construction.	See minimization measures above.

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